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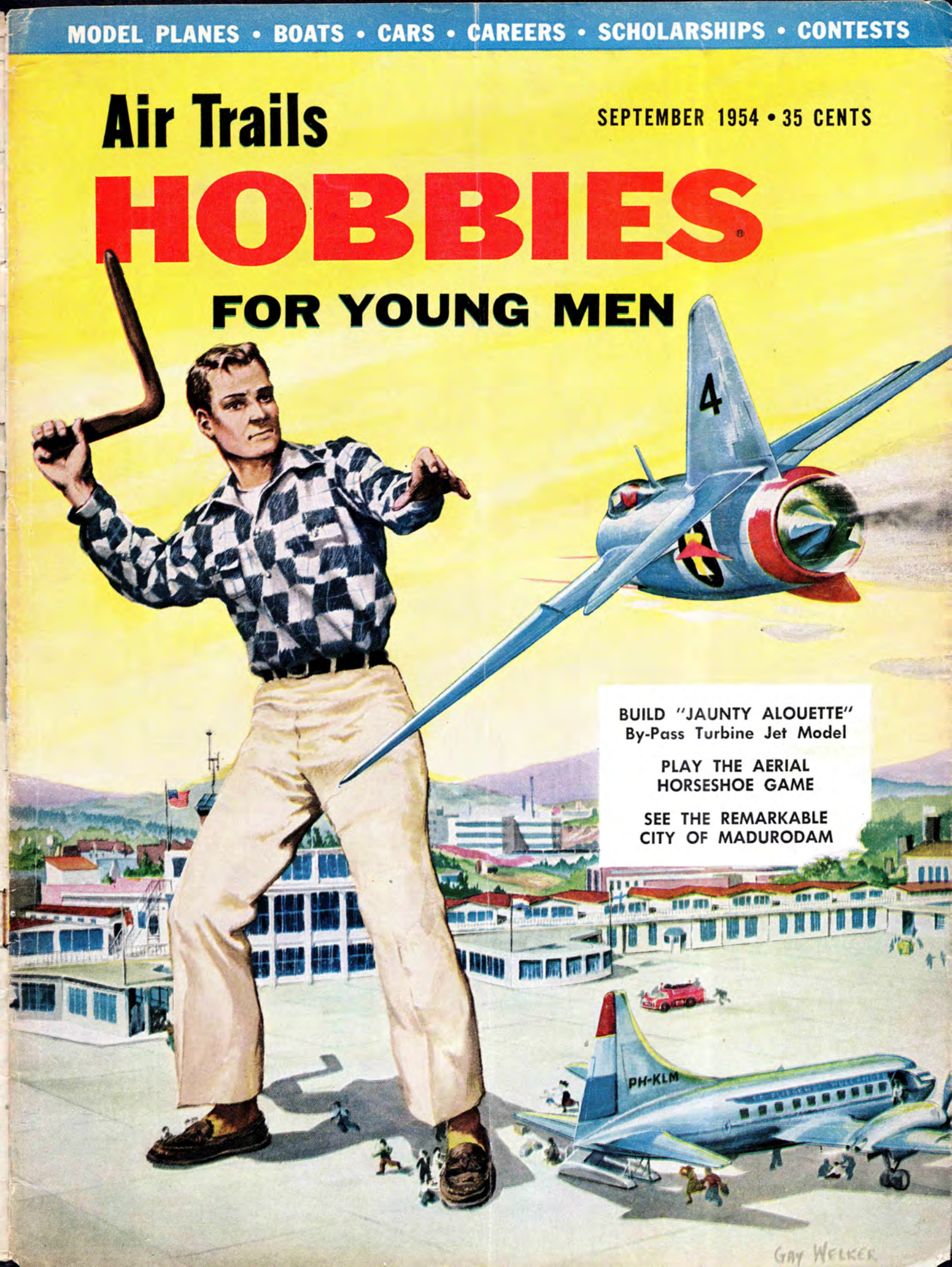

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AIR TRAILS

HOBBIES

FOR YOUNG MEN

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Editorial Offices Located at 304 E. 45th Street, New York 17, N. Y.

Rather arresting, yes? This issue's cover resulted when we put three features together, a miniature town in Europe, boomerang throwing and a bypass turbine semi-scale model plane. Gaylord Welker did the art work for us.

Author George (left) of pg. 40 feature with Gov. Hugh Gregg (rt.) of N. H.

Mighty powerful little water racer is this miniature outboard mite (pg. 44).

Here's a shot that will bring back memories to World War II airmen! Pg. 48.

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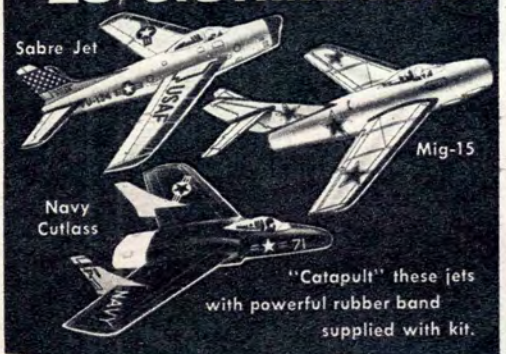

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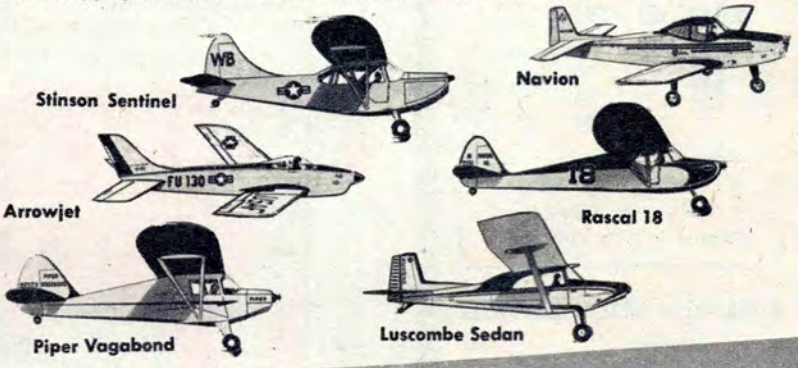

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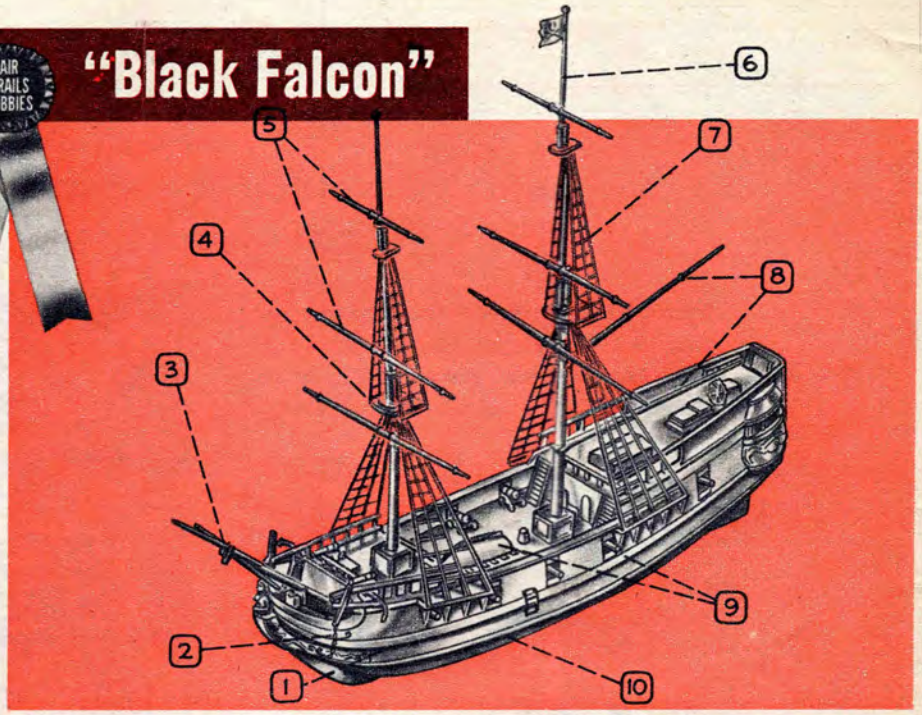
AIR TRAILS HOBBIES

"Black Falcon"

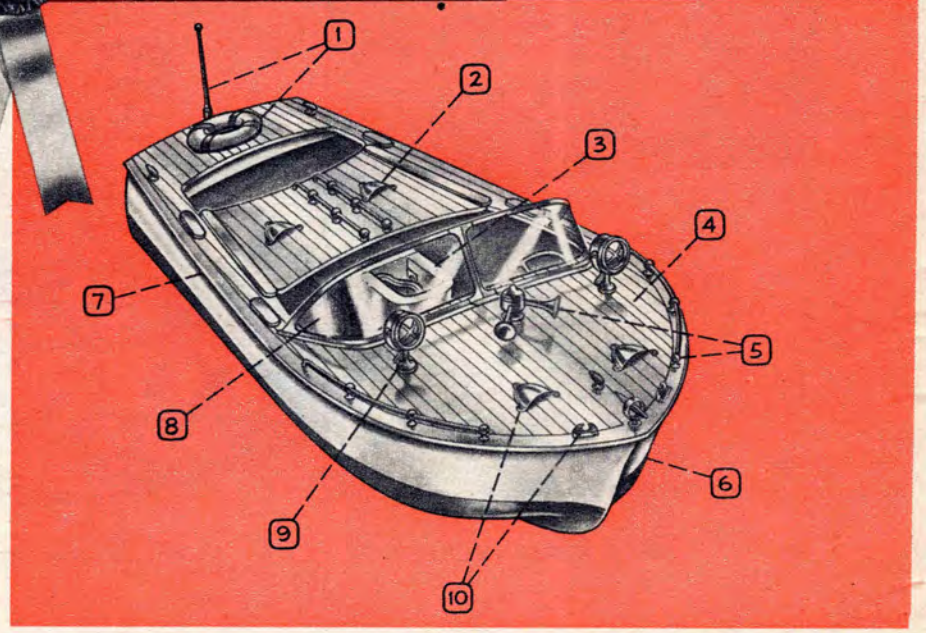


Modeling after early ships of the pirate days, Aurora Plastics Corp. has produced a scale assembly set called the "Black Falcon" that is complete in all details. (All parts ivory polystyrene except anchor chains.) 1) Three-piece hull and transom. 2) Anchors with metal chains, and figurehead. 3) Bowsprit assembly. 4) Mast platforms. 5) All "yards" molded separately. 6) Masts formed in sections. 7) Mast shroud assemblies. 8) Spencer gaff and boom. 9) Life boat, railings and eight cannon. 10) Plastic base mount not illustrated.

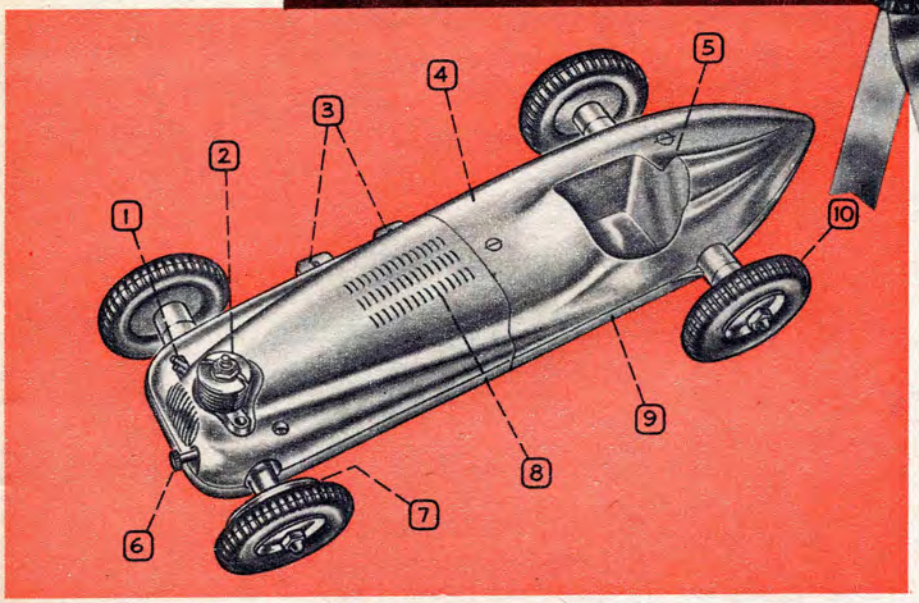
International Models' "Nike" prefabbed assembly set boat is 17½ inches in overall length, has a 5-inch beam. Features are: 1) Scale rear light and life preserver. 2) Finished, removable hatch. 3) Electric motor, ready to run, complete with battery fittings and switch. 4) Finished, grooved top decking. 5) Horns, deck railings and fittings. 6) Fully shaped, sanded, hollowed, wooden hull. 7) All marine hardware; drive shaft, propeller, rudder, etc. 8) Finished plastic and metal windshield. 9) Electric swivel spotlights wired for batteries. 10) Ventilators, cleats, etc.

AIR TRAILS HOBBIES

I.M.P.'s "Nike"



Wen-Mac" Automite"



A ready-to-run, complete-with-engine miniature race car is the "Automite" by Wen-Mac Corp. Noteworthy points include: 1) Fuel tank filler and vent. 2) Wen-Mac .049 glo-plug engine. 3) Integral tethering lugs. 4) Red plastic body. 5) Scale off-center cockpit and headrest. 6) Engine needlevalve. 7) Starting pulley mounted inside left front wheel. 8) Scale louvres. 9) Body formed in halves. 10) Scale plastic wheels with aluminum discs. (Pivot, bridle, tether line and starting cord included.) Left front wheel and flywheel are mounted directly on engine's crankcase.

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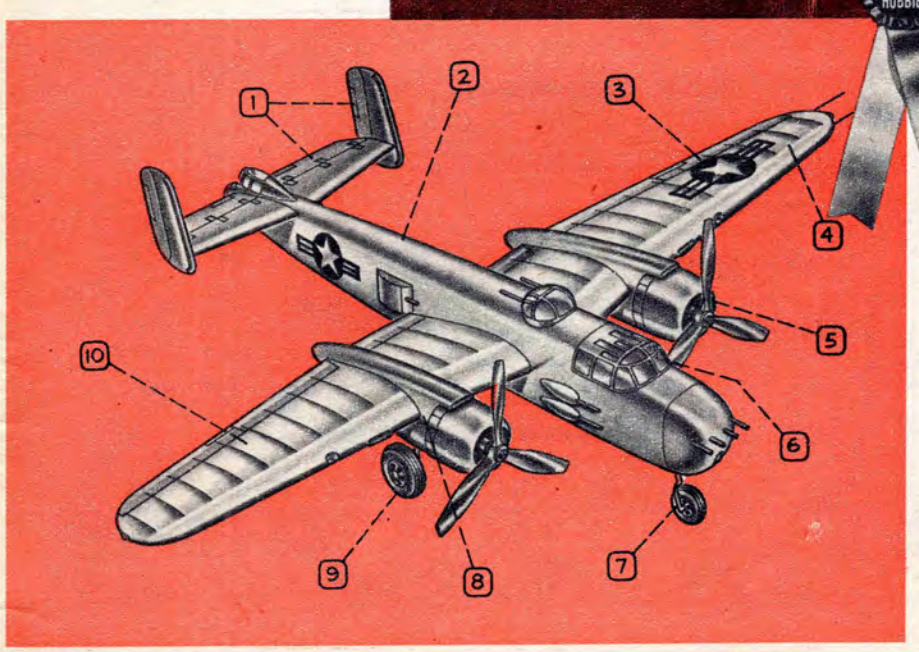
Miniature's B-25



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Buried in This Ad

are most of the new items. Sometimes there isn't time or space to list all of them. But, if available anywhere, we have it.

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HOBBY-MODEL WORLD

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Unusual, heavy wing loading radio control twin-boom pusher by B. Bigalke of Germany utilizes a catapult for assisted take-off. Catapult lines shown in bottom right corner.

■ Pretty much a standard event across the country yet one that still evokes many a hot argument and rules controversy is combat flying with control line model planes. It has great appeal for the onlooker, be he a modeler or not, and is always the highlight of any competition. But judging the affair is a real chore, especially on a point basis where entrants are credited for each attack. Comes now some suggestions for simplified scoring by H. R. Young, one of the early combat flyers of Houston, Texas.

Mr. Young was co-designer of the "Combateer" combat model which ran in this publication—as a matter of fact, it was the first pure combat design to appear anywhere. Prior to the Combateer, all combat planes presented in detail had been converted stunt models.

Powered by a McCoy .049 diesel is this Vertical Take-Off (VTO) control line model by Galen Ozawan of Livingston, Calif. Swings 7-inch prop; no flight report yet.

The Heights Hobby Club of Houston is endeavoring to publicize Harry's simple combat rules in an effort to expand the event and make judging a lot easier and more accurate.

In general these are Mr. Young's proposals: any control line airplane may be used (we take this to mean there is no limit on the design or who built the model); each entrant can use as many models as he desires, but engines are to be not larger than .35 cu. in. displacement; only wooden propellers permitted. Flying order will be determined by drawing numbers from a hat. Upon the signal of a judge *three* contestants in the flying circle will start cranking their engines. The first plane to start will be held until a second has its engine running, then both these will be launched at the same time (on signal of judge). The remaining contestant is out of that round and can utilize the time until the next flight to get his engine running and model ready to fly.

Now—back to the two models in the air . . . if both planes complete the flight, shortest remaining streamer loses and its flyer is eliminated. Streamers are measured from free end to nearest part of the plane. If neither streamer is cut and fight ends because one plane landed, a contestant who failed to fly at least one minute will lose one-half flight. If both planes (*Continued on page* 72)

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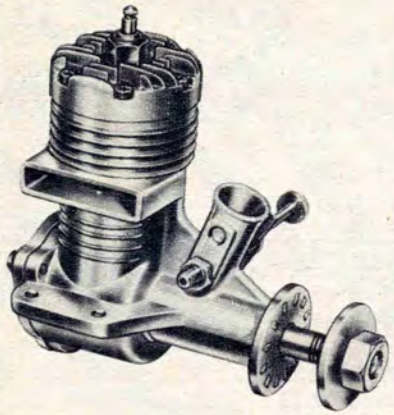

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AQUA-tivities

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■ One of the most active boat groups in the country seems to be the Southern Calif. Model Power Boat & Yacht Assoc., if we are to judge from the fine bulletin of activities. As the name states, this group covers every sort of model marine work, so it is always making news in one form or another in the Los Angeles area.

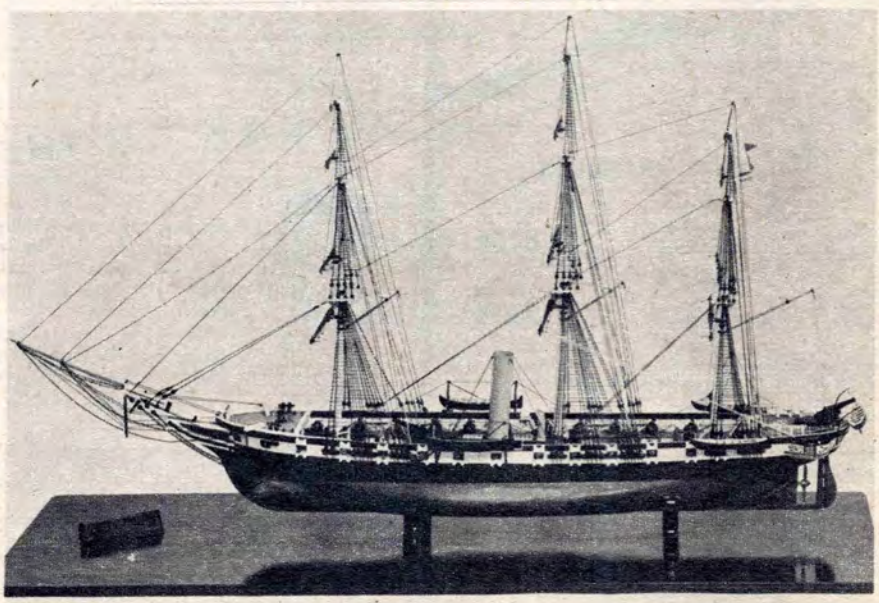
Something a bit unusual in this country was a Steering Contest, held by the S.C.M.P.B.Y.A. at Alondra Park on May 2; this consisted of a cross-lake course arranged with varying degrees of cross-wind, and ending in a marked-off area, the center of which counted 100 points. Other areas away from the center scored less, with colored balloons to define 90, 80, and 70 points. Outside of this, the contestants got nothing. Each entrant had three tries, with total high score winning. Sixteen boats of all sizes and types competed, with top place going to Bill Baughman; 2—Al Woods; 3—Charles Thompson; 4—Steve Farley.

We tagged this contest as unusual in the U.S. since the Steering Event has long been a favorite in England and other countries, with even more entries than the speed events; reason for this, of course, is that you can enter with any sort of boat at all, no matter what the power or speed.

A system of craft identification has been worked out by the S.C.M.P.B.Y.A. and submitted to the I.M.P.B.A.; idea is that each member of the International group will have a "life number" assigned to him, which number he may affix to any sporting boat he may build. He *must*

Top award in Republic Aviation's hobby-model contest for employees went to Mario Donaudy for this magnificent quarter-inch-to-foot scale copy of the Elco PT boat. Metal fittings.

Another prize winner in the Republic competition was this splendid shelf model of the U.S.S. Hartford. One incredible entry was a full-rigged sailing ship entirely of blown glass!



apply the number to any boat entered in a sanctioned contest; the system allows expansion so that a member may have any number of boats, all individually identified.

As a last note on this group, a membership drive is under way, and interested boat builders are urged to get in touch with Bill Baughman (3432 West 43rd St., Los Angeles 8) for dates and meeting locations.

Jim Lawlyn (Niskey Lake, Ben Hill, Ga.) says that a small boat club was formed last year, there being five members; they had a race or two with just one class of boat—electric inboards. This year the club has expanded and every member has two or three boats, so they expect to have races for club members almost every week. Classes will include electric and gas inboards, ditto outboards, and boats with air props. Small entry fees cover cost of the trophies given to winners.

We asked Jack Ingham (3765 Tenth St., Riverside, Calif.) if there was any boat activity out his way. Jack has been interested in R/C model planes, but has branched out to R/C boats, too. He described a neat arrangement which might be of interest to other modelers; he has a 21" runabout fitted with an Atwood outboard engine, and an E.D. clockwork escapement is arranged to swing the outboard from side to side, for steering. He expects to add motor speed control soon, and says the boat is surprisingly fast and a lot of fun to run.

Jack feels R/C boats are a little dull after planes, but he finds they have one big advantage; it seems that for some reason other members of the family don't mind going out to the lake for a boating session, whereas they might refuse to go out on an R/C flying trip. Jack flew R/C planes almost alone for three years, but now there are about eight fellows with boats in action, in his vicinity.

Speaking of R/C, we hear a note of caution sounded by the DC/RC radio control gang. Seems some of the members built R/C boats, and were in the habit of operating them on weekends, while other members flew their planes. Unfortunately, the boat and plane sites were not too far apart, and serious interference was noted. Rules now call for the boat boys to operate at least five miles from the model plane flying field—this has worked out fine.

We have a lot of interesting notes on model boats from Sam Rabl (6 N. East Ave., Baltimore 24, Md.) who has been building model boats—and big ones, too—for years. On the subject of model speed boats, Sam notes that the defunct Dooling is the only engine hot enough to break the existing speed record of over 84 mph, in the 10 c.c. class. He finds that with the Doolings and Hornets no longer made, the speed boys are again turning to flash steam, for the necessary power. Some very fine high speed boat engines have been made in France, among them the Stab and Micron; if development of these powerplants continues, we may have to reverse the usual course of events, and import them ourselves.

Sam has done some work with R/C model boats, and has developed boat designs and equipment which are popular with the model builders in his area; one design is of a Coast Guard Patrol boat, something not often seen in miniature form and a welcome change from the usual runabouts and cabin cruisers. He also has a steam-powered tug about ready for action, a 30" R/C P. T. boat, plus others.

(*Continued on page* 74)

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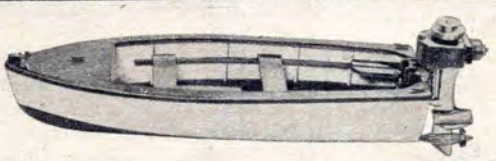

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HOBBY BOOKSHELF

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Pilot by Tony Le Vier as told to John Guenther (Harper Brothers, New York, N. Y. 263 pages—$3.50). This is the life story of a man who wanted to fly more than anything else in life. Even as a boy who lost his father at an early age, necessitating getting a job to help the family income, the author found the time to watch mechanics repairing planes, to help around the hangars. Later he left school and took odd jobs at the airport in payment for flight lessons.

Finally when Le Vier received his transport license the depression was in full swing, but he stuck with aviation while his pilot friends took to driving trucks and other jobs far afield from flying. In a few short years the opportunity to race came. Here in detail are described the preparations and thrills of racing with all the heartbreak of the sudden death of competing friends, the mechanical failures as well as the exhilaration of winning.

The most interesting part of the book is the experiences and observations by the author as a test pilot. Here the reader has the sensation of riding in the cockpit of a new plane right off the drafting board. It is an experience not to be missed.

The story is that of a man whose only love from boyhood has been flying. He has flown everything from World War I Jennys to the newest supersonic jets, from speeds under 100 miles per hour to 1600 mph. It is the dramatic life story of one of America's outstanding test pilots.

The Boy Mechanic by the Editors of *Popular Mechanics* (Simon and Schuster Inc., New York 20, N. Y., 320 pages —$2.95). This is the latest of the many editions published in the last forty years —however, none of the 500 projects appeared in any of the previous editions of the book.

The instructions are precise and complete with each step of each project illustrated by diagrams, drawings or photographs. The projects for building toys, box-kites, bobsleds, bird houses, weather vanes are both enjoyable and profitable. The section on the use of tools and their maintenance can save many a dollar, and of real interest is the care and repair of bikes. The building of a handy bicycle trailer is fully described and illustrated.

A good part of the book is given to indoor crafts designed to make many a rainy day shorter, and the nice part is no special tools, machinery or materials are necessary. The project of making a plaster cast of your hand, then mounting it on a plaster base to use for book ends is a new way to make a novel gift.

When you get this book it will be best to keep your eye on your tools, for sure as shootin' Dad will be in the basement making one of the projects for himself. Most of all, the thrill of creating things of practical use around the house will be a satisfaction to you and a pleasure for the entire family.

Practical Guide to Model Railroading edited by Linn H. Westcott and Richard H. Wagner (Kalmbach Publishing Co., Milwaukee 3, Wisconsin, 60 pages). This is a paper-backed book designed as a guide for the young man thinking of taking up model railroading as hobby.

Scale model railroading has grown so popular in recent years it vies with planes, photography, wood working and ham radio for the top honors among boys and men. It provides outlets for such skills as painting, carving and molding as well as increasing proficiency with the soldering iron and drill. It becomes your own personal empire to control, and with it to exercise your creative talents.

With this in mind the editors have given detailed instructions in designing setups, choice of gauges, track layouts and wiring diagrams, always bearing in mind the reader can improvise to his heart's content.

It is a book well written and illustrated with excellent photographs. Although one may start it as a casual reader, he stands a good chance of being bitten by the model railroading bug and wind (*Continued on page* 89)

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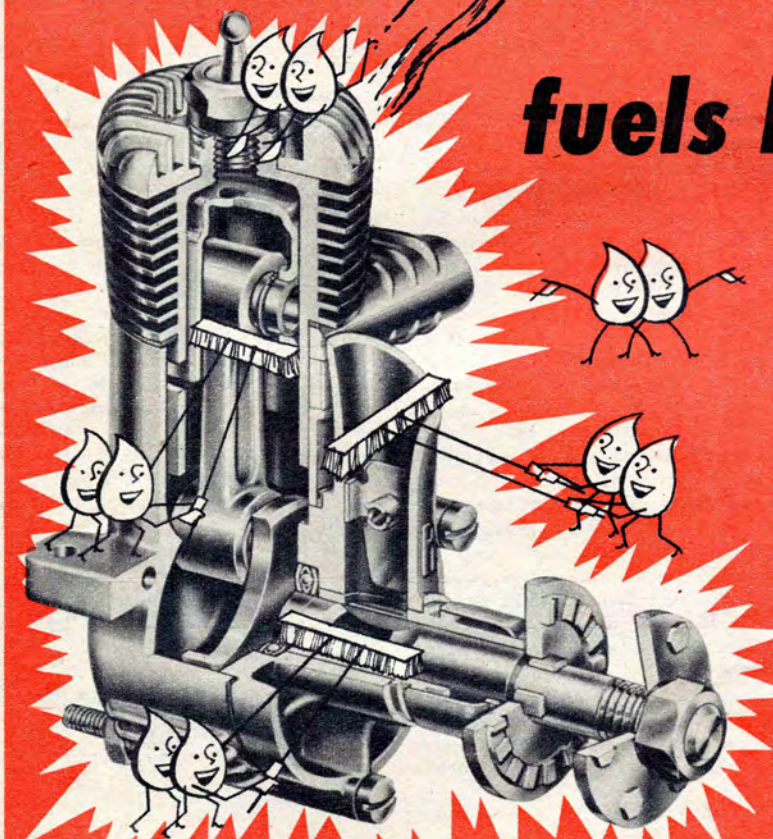

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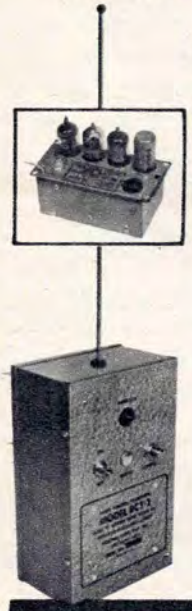

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Everything Under Control

News, Views, Comment on Radio Control Planes, Boats, Vehicles by Howard McEntee

■ The photos here show the latest attempt by Dale Root (6036) Telegraph Ave., Oakland, Calif.) to combine scale appearance with top performance. He finds that flight characteristics are much like those of his "Little Freak"—see 1954 A.T. Model Annual—which is not surprising, as the same general proportions were followed.

Area is 600 sq. in. on the tapered wing, and the airfoil is semi-symmetrical. Ship weighs 5½ lbs. and is powered with 2-speed K&B .23. Fiberglass reinforcement was applied from nose to wing trailing edge. Covering is silk. Babcock 3-channel equipment is fitted, with usual RME setup; Dale said he originally intended to put flaps on the wings, but feared his rough flying field would just tear them off.

Despite 22 oz. wing loading, ship has very flat glide; wind penetration is very good. Like everyone else who tries it, Dale finds the trimmable elevator a bit tough to learn to use properly, but says once you get onto it you'll never be without it. He finds two medium flashlight cells in parallel will give about 1 1/3 hrs. of continuous service on the BCR-4 receiver.

Dale notes that he and all the other R/C gang who attended the Aerial Robots' contest at Crows Landing had a fine time—it was one contest where everyone had his real fill of flying, with at least six officials. Sorry we can't give results; never received any!

The Annual N. Y. Daily Mirror Flying Fair always draws lots of R/C flyers from the entire Northeastern area of the country. This year was no exception. Meet was at Floyd Bennett field, Brooklyn, N. Y. However, weather was about as horrible as you could imagine. *Very* strong wind and cold—and quite a few of the boys came equipped with nothing but short-sleeved shirts! Winter coats, ear muffs and heavy gloves were the order of the day, for those lucky enough to have them along. Because of the weather flying was greatly curtailed, but a dozen or so brave builders dared the elements. Winners were: 1—Carl Schmaedig (Rahway, N. J.), 2—Vincent Bonnema (Clifton, N. J.), 3—William Dean (Winchester, Mass.). Top man Schmaedig took home a beautiful Italian motor scooter for his day's work; he flew an original plane with Babcock 3-channel equipment.

We have been advised by the SEV/RCG (S.E. Virginia Radio Control Group) that the date of their R/C Roundup, listed in the August issue as over the Labor Day weekend, has been changed to Aug. 21 and 22—due to conflicts with other R/C meets and meetings. Big time for all is promised; write to John Worth (Box 9, Hampton, Va.) for reservations and other details.

Earl Cayton's "Journal of Oregon Aeromodellers Assoc." (879 N. Liberty, Salem, Ore.) notes that R/C is really catching on in the Northwest. He and several others enjoyed the R/C Get-together held by Corvallis Comets. The Capitol Sky Cats of Salem will hold an R/C meet soon.

Bill Butler sends a few notes on the R/C Event at the Pacific Coast Championships. Won by Dean Kenny using his "Miss Buttercup" with Curry 2-channel receiver. Colby Evett was second. Howard Bonner flew a neat Beam to third place, using RME; Howard's famed old "Bonner-Bug" is no more—flew into the ground during some wild stunting.

R/C Event at Easton Pa. meet was

most enjoyable affair, according to all who attended. Transmitters were collected as entrants arrived, and each contestant could use his only when he was making an official flight. Scheme worked fine—not a single cry of "Interference!" all day. Event was won by Vince Bonnema, flying an original with rudder only. This is the same hot ship that brought Vince second in the Mirror Meet (he was only a couple of points below the winner); it's an attractive, rugged and easy-to-build job, and we hope to have plans of it soon in ATH. Will do consecutive loops, rolls and all the rest—if a hot pilot is at the button.

More notes on the big Great Lakes Regional R/C Meet, Aug. 21 and 22; Ernie Kratzet (1112 Book Bldg., Detroit 26, Mich.) says top man in the "Expert" class will receive fifty bucks plus an impressive perpetual trophy. Next four placers will split $100 among them. The "Novice" category top winners will split $75 in merchandise among them. Entries have already been received from several top-notch flyers, so this should turn out to be a first-class regional meet.

Sedalia (Mo.) R/C Event ran into real difficulties, according to Paul Runge, who was to direct it. Held at the Air Force base, there was considerable snafu on location of R/C flying site, someone forgot he had promised Paul that markers would be set out for the Precision event and that a P.A. system would be needed. About the time all this was settled, word came that the field had to be cleared to allow some B-47's to come in. By the time they had landed (pretty late in the morning) it started to rain. By 3 p.m., when it was really pouring, the Lieutenant in charge told Paul that it was O.K. to go out on the field and get his R/C event underway —but most of the boys had left for home!

We learn that English R/C builders, who have been operating on frequencies about the same as ours but with no necessity to get a license, will be under a bit more restriction. They now have to get a license similar to ours (no exam needed) and must pay about $2.80 for same; license runs for five years, so this is not too steep, but there is another hooker tacked on. Seems they have to notify their licensing authorities whenever they expect to work R/C away from their home field, or pond.

Speaking of license fees, it is quite likely that we will be charged for Citizen's licenses in the near future. F.C.C. is drawing up a scale of fees for all licenses they issue, which includes commercial, ham, and everything else. Idea is to help defray the costs of issuing such licenses from fees paid by the licensees, rather than from taxes of general public.

And a further note on licensing; we get some news on how things are set up in Canada, as regards the R/C boys. They have spots or bands in the various "industrial, scientific and medical devices" frequencies, which are at 13.56, 27.12, 40.68, 915, and a couple much higher. *But*—operation of transmitters in any of these ranges calls for a Private (*Continued on page* 59)

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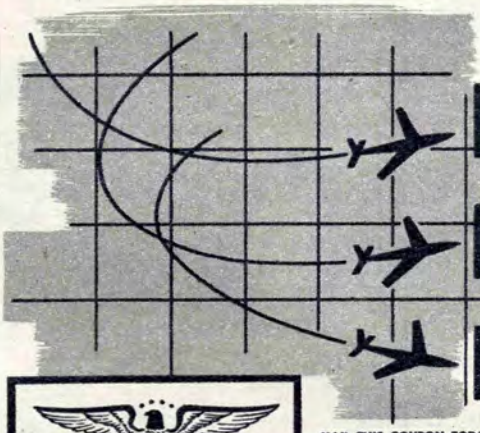

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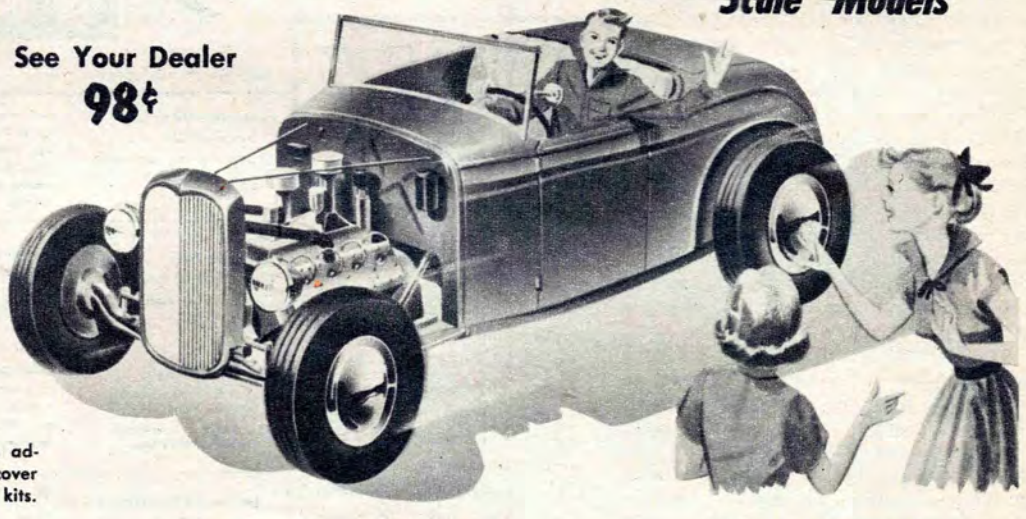

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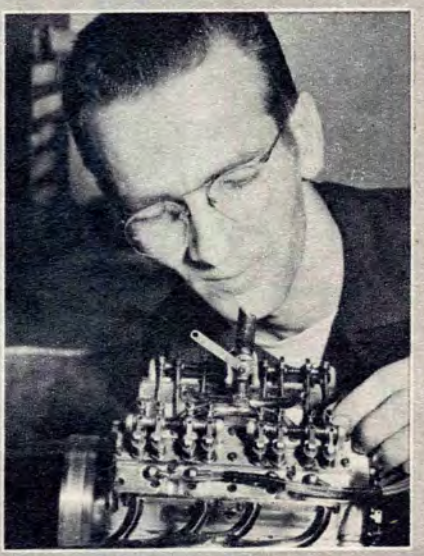
Speaking of HOBBIES

Speaking of readers . . . . we want to remind you again that your photographs and comments are always welcome here at HOBBIES. In addition to the various contests that we are running in each issue, we pay $10 apiece for single photos used in departments like "Hobby-Model World," "Aqua-tivities," "Everything Under Control"—and usually about $7.50 apiece for each photo used when we run a picture story on a club, exhibition, competition, unusual model or modeler.



Speaking of engines . . . that miniature V-8 motor took two years of spare time to build, plus $125. Norman Seymour of Whittier, Calif., a machinist, is shown with his little baby. The 5-cubic-inch motor turns up 7,000 rpm. Mr. Seymour made all the parts except the valve springs and spark plugs. Weight is 13.5 pounds. Bore is 15/16th inch. Stroke is 7/8 inch. "Made it just to play around with," reported Mr. Seymour!

Speaking of hobby dealers . . . . this month we want you to meet Seymour Brown of New York City. An ex-G.I. and ex-furrier, Mr. Brown opened a hobby shop on upper Broadway ("the" Broadway) just across the street from Van Cortlandt Park. Which accounts for the sign you frequently see on his store door during the early part of the afternoon: "Gone flying, back at 3 P.M." Only 25, hobby shop proprietor Brown has already acquired a reputation for willingness to help any hobbyist with any problem. He's pictured behind his counter and his Tri-Pacer radio model with young Mervin Dayan.

Speaking of workshops . . . this is about the simplest you'll ever encounter. We refer to artist-sculptor Richard Lippold (lower right) who uses wire to create his famous abstract sculptures. Mr Lippold's tools hang on the wall; one of his works is suspended from the ceiling, another is mounted on the floor stand.

Speaking of sponsors . . . . After years and years of effort, the Academy of Model Aeronautics has succeeded in enlisting the aid of a major aircraft manufacturer in backing air-model activity. The Convair division of General Dynamics Corp. (makers of B-36, F-102, Sea Dart, Convairliner, R3Y-2, etc.) signed up to sponsor the first annual World Model Air Olympics last July at Suffolk Air Force Base on Long Island. The W.M.O.A. right now means the Wakefield rubber-powered championships and F.A.I. free flight gas duration championships; later it can add up to a lot more events of an international nature.

The Air Force Chief of Staff, General Nathan F. Twining, expressed full accord with the Air Olympics program and its aim of encouraging interest in aviation among nations of the free world. Twining said that "the significance of airpower, both civil and military, in the present and future lives of the young people of today cannot be overemphasized. By bringing together in friendly competition young persons of intelligence of many nations, this event should also contribute to greater understanding and mutual respect among the peoples of the free world community."

Convair's president, retired Air Force General Joseph T. McNarney, pointed out that model aeronautical engineering is an internationally accepted science as well as a sport. "Its practical value is evidenced by the fact that many enthusiasts in model construction and competition have become famous designers and builders of aircraft," McNarney said. "And among the millions of today's model builders and contestants are many who will take their places in the aircraft industry and in military or commercial aviation in the years to come."

Our hat's off to Convair! Now if we can only find some official support for model boat and car activities. . . .

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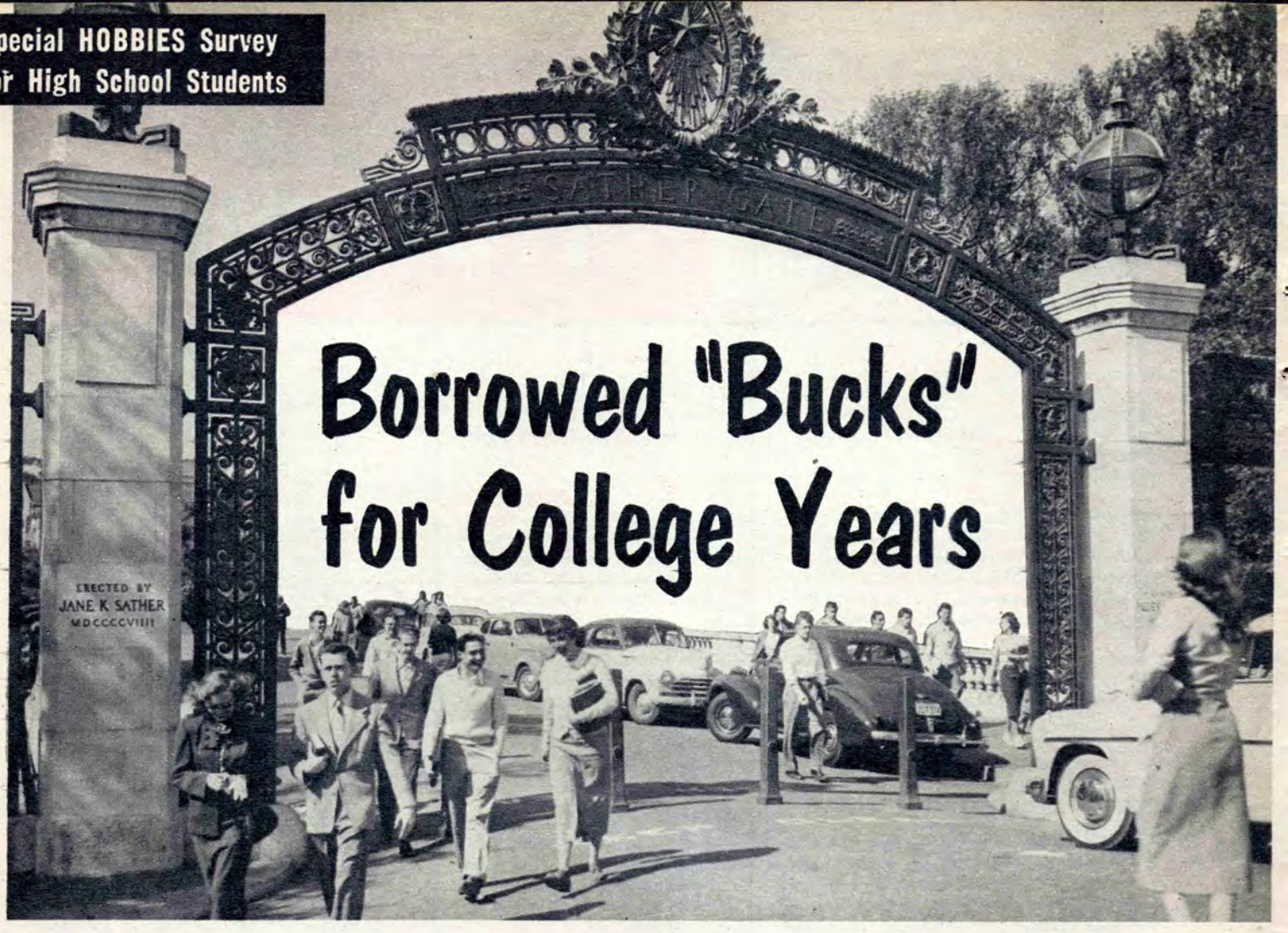
Special HOBBIES Survey for High School Students



Borrowed "Bucks" for College Years

Hundreds of non-commercial loans to help students are available. Majority do not expect repayment till after graduation

■ There was this guy in high school the fellows called Shaky. Not nervous—just never felt certain about anything. Wanted to be a doctor, but kept telling people he couldn't see how because it cost a heap of money and he didn't have a bean. He lived down on River Road with his Grandma Hight, who had arthritis but took in sewing anyway; Shaky did odd jobs around town after classes. Coach wanted him to go out for football—said with those shoulders and steady ways he'd make a great guard. But Shaky said he couldn't take the chance of hurting his hands. Things like that.

Along in his junior year Grandma spoke up: why didn't he apply for one of these scholarships she'd read about which the lodge his dead pa belonged to gave to children of members? Shaky said those scholarships were only for a year at a time, didn't cover half the expenses. And as for earning his way—he said at State they wouldn't pass out part-time jobs to freshmen because of the study load in pre-med. In his senior year Mrs. Hight broke down and confessed she'd been saving the money he brought in all this while and along with her egg money there was practically enough for his first go-round.

But Shaky said no'm, even with what he could make during the three summer vacations ahead, plus the part-time while a soph, he'd barely be able to scrape through till his junior year. And *that's* when the going got tough, he said, what with big lab fees and more expensive books.

Know what? At the time Shaky hadn't heard about the loan fund which the State had on tap for its juniors and seniors which would have knocked the pins from under his final argument. He did hear another piece of news later . . . a state medical body announced it would advance loans of $800 a year for four years to medical students and cancel the whole thing on agreement of the doc-to-be to practice in rural sections for a certain period of his career. But by then Shaky had a regular job, $48 a week, and said he'd been out of school too long.

Let us weep no tears for Shaky. Instead, we'll do something constructive by having a look at the whole picture of loans, another phase of student aid that might be of help to *you* in getting a college education. Previously (April 1954) we covered scholarships, meaning outright grants with no repayment expected. Loans for student aid, of course, spell money that has to be paid back—but these loans are *not* the straight commercial kind. For the latter you must put up col-

lateral to secure the borrowed amount. And since—let's face it—you don't own any valuable property, and the old homestead is probably mortgaged enough as it is, we will not here be concerned with the regular commercial loan.

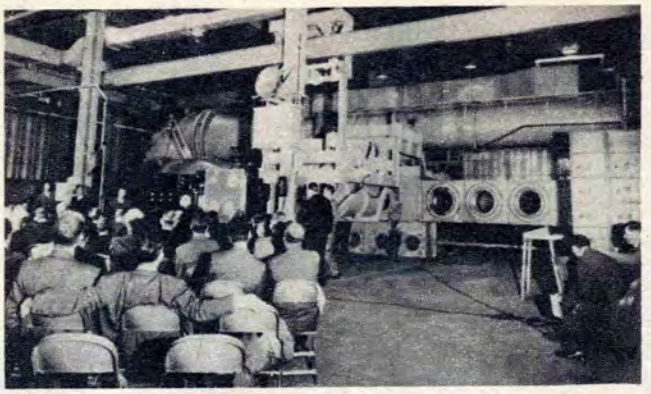
Student-aid loans come from two main sources: the colleges themselves and from private organizations such as foundations, clubs and the like. You put up no collateral. They are betting on your future. In general these loans are limited to so much a year, from $100 up; $250 per year maximum is typical. There is also usually a max on the total amount you may borrow during your college career. Interest rates range from 1% to 6%, with 2% to 4% the most prevalent. In the majority of cases the interest does not start till after graduation, and in practically all instances you do not begin paying back the note itself until after leaving school.

Again generally speaking, loans are open chiefly to those in the junior or senior year of their college career, though some are available to freshmen. They are intended as an adjunct to other forms of aid, and frequently have the proviso that all such other forms must have been exhausted. You should have a good scholastic record—though it's not necessary to exhibit genius grades. Obviously, no lazyboners or chronic moochers need apply. If you are under age, a parent or guardian also signs the promissory note.

Most institutions of higher learning have loan funds designed to help the worthy, needy student finish his education. Massachusetts Institute of Technology has conducted such a fund for years; the overall figure now totals one and a half million dollars; interest is 1%. Carnegie Tech, with a loan fund of $72,000, charges no interest; average loan is $318. The University of Pennsylvania has $200,000 on tap, 2½ to 3% interest, average loan $300. With these same category heads observed and in the same order, the following schools may be listed: Oberlin, $311,000, 4%, $200; Princeton, $800,000, 2%, $300; U. of Calif., $449,000, 5%, $100; St. Louis U., $36,000, 2%, $350; Montana School of Mines, $13,000, 2%, $100; New York U., $272,000, 4%, $200.

The University of Michigan makes loans to 2500 students totaling more than $250,000 in an average year. Case Institute of Technology in Cleveland makes loans up to the entire amount of tuition. Ohio State University has loans of $500-$750 for men. The University of New Hampshire, with a fund of $400,000, makes loans to sophomores as well as juniors and seniors. And the Dartmouth Educational Association lets you repay whenever you can after graduation.

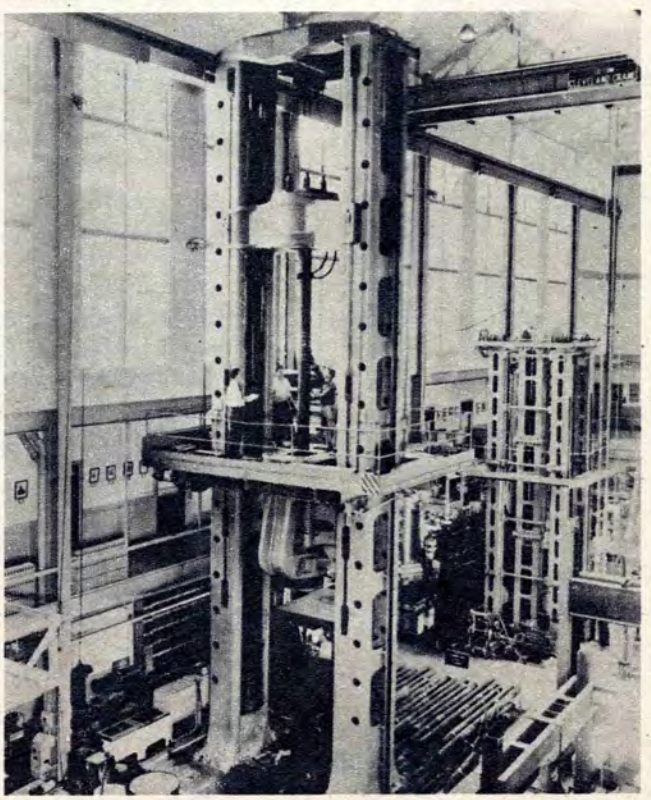
A number of fraternal orders and clubs have special money set aside to lend college students. The Educational Foundation of the Independent Order of Odd Fellows has such loans for children of Odd Fellows or Rebekahs, with a maximum of $400 for one year and $800 during the whole course. Freshmen are eligible providing they are planning only a short two-year course, in which case it is not necessary to attend a regular college. Local units of Lions International make student loans, as do those of Rotary in various cities. Atlanta (Ga.) Rotary, for instance, will accommodate residents of the state studying there or elsewhere, and up to one-half of the estimated cost of a year's schooling.



Massachusetts Institute of Technology has overall loan fund of $1,500,000, with low interest rate of 1%. Shown above is supersonic wind tunnel that was installed at M.I.T. by Navy.

Florida outstanding in loan programs. Non-profit Florida Loan Corp., for example, is interested in helping any young resident go to U. of Fla. or Florida State U.—from which campus scene here.

Univ. of Illinois lending fund, well over half million, makes average loan of $200. Below is seen school's big testing machine exerting force on well casing made of new alloy steel.



Borrowed "Bucks" for College Years

University of Michigan

The big school at Ann Arbor—U. of Mich.—in an average year accommodates 2500 students with loans totalling more than $250,000.

Johns Hopkins University

Johns Hopkins has revolving loan fund of $82,000-plus. U. of Cal. conducts large lending program at all branches—here: Berkeley.

University of California

The Worcester (Mass.) Boys Club maintains a fund providing loans up to $1600 during a four-year course that have no interest involved and may be waived entirely at the discretion of the trustees. You must reside in Worcester.

And the Educational Aid Fund of the Massachusetts State Grange will lend its junior members money even as college freshmen embarking on a four-year course, at any school: $250 maximum in any one year, and every year if needed.

Most state branches and many local units of Parent-Teachers Associations conduct some student-aid program that includes college loans. As in the case of fraternal orders, it would be wise to inquire at your local P.T.A. And labor unions, also at the local as well as state level, are making increasing provision for loans to members and their children.

If you join a fraternity while at college and find yourself embarrassed financially about continuing your education, chances are the brothers will help you. Typical is the loan fund of Sigma Chi, which charges 3% after date of graduation, for members with above-average scholastic rating. Phi Lambda Upsilon, the national honorary chemical society, also requires a high scholastic record; amounts range from $50 to $300.

The American Society of Mechanical Engineers administers a loan fund for its student members who are at least in their junior year. The amount depends on individual need. You can be studying mechanical engineering at any school in the country, and any M.E. undergraduate is invited to join the Society as a student member.

A growing number of states have programs making money available to those who wish to enter the medical profession—and here the figures are big. The Illinois State Medical Society will advance as much as $5,000 over a period of five years to students native to Illinois counties that need doctors. You repay within five years after starting practice, at 2%. The Student Loan Fund of the North Carolina Medical Care Commission provides loans up to $3,200, or a maximum of $800 per year for four years for those wanting to study medicine or dentistry. Applicants must have been residents of the state for at least eight years prior to filing, and must promise to practice in small North Carolina towns for at least four years after graduating. Again, the interest is 2% annually.

And the Kentucky State Medical Association has a fund for loans which are canceled completely on condition that the student, after getting his diploma, practice in rural areas of the state for as many years as he was aided by the fund . . . Other states have liberal loan arrangements for prospective doctors. Inquire at your state department of education.

All over the land private citizens of wealth desiring to make the road less rocky for students in need have set up foundations to lend them money while in college. And the process goes on continually. Generally the founder exercises his privilege of laying down certain restrictions as to who may apply or the kinds of courses for which the money is available.

Unusual is the character of the Slemp Foundation —not for being confined to residents or descendants of residents of Virginia's Wise County, but because the loan may be "forgiven" if the recipient attains high scholastic or special honors, in his college career. The greater the honors, the less to be repaid. Mr. Slemp's initial plan, for instance, called for a 50% reduction of the note for a semester in which the borrower made at least four straight A's, with at least passing grades in all other subjects.

The Henry Strong Educational Foundation Loan Fund is open to students attending Western and Southern colleges (juniors and seniors). Application preference is given those taking practical, scientific or business courses. Repayments may be made over a period of four years after graduation, at 3%. On the other hand, no interest is charged by the Hattie M. Strong Foundation, Inc., nor is there a set period for paying back. No qualifications are stipulated as to race, color or creed. Loans may be had up to $450 per year, with a course maximum of $1,000.

The Davis Cooperative Educational Plan, operating in Iowa, has for its purpose aiding the average and

persistent student rather than the super-bright. Among the questions asked on the application blank are: how have you proved your initiative in earning, saving or using money? What is your hobby? How do you spend your spare time? There is no set amount. Recipients must promise not to join fraternities or enter into marriage before the loan is repaid. Mr. Edwin W. Davis keeps a paternal eye on his "alumni" for years after graduation, recording their progress.

Some religious groups have student lending programs. Loans for Jewish young men and women are made by the B'nai B'rith Hillel Foundations at American Universities. No interest charges, and no legal obligation to repay—though recipients are expected to return the money when able. Those living in Chicago, Los Angeles and New York are given preference.

The Presbyterian Church—which has yet other loan funds open at its church colleges—conducts one plan whereby those preparing for church work may repay borrowed money by donating one year of service to the Presbyterian Church U.S.A.

Industry also is represented. Many large corporations provide loans to employes or children of employes who require money to finish their studies. Burlington Mills runs a foundation whose funds are available in any community where the company operates. You can get up to $500 for the first year and renewals up to five years. Nor must you work in the textile field after graduation. General Electric conducts two kinds of loan plans for children of employes. In the first ($250 per year maximum) the student repays after finishing school. The second plan ($200 per year at the most) allows the parents to repay by payroll deduction, from the start of the loan.

Although having no connection with that firm, the John and Olga Queeny Educational Foundation makes loans without interest and not over $500 to children of employes of Monsanto Chemical Co. or one of its subsidiaries, who have been at least five years in service.

An often unsuspected source of student loans is banks—and we don't mean the standard commercial kind of loan. Banks may be named to administer funds to lend needy scholars, as in the case of the First National of Portland, Ore., which handles the Crawford Student Loan Fund for Men (maximum $1,000). This one, mainly for residents of that city or residents going to school elsewhere, favors those studying mechanical arts, business and the like—but not law, medicine, teaching or theology.

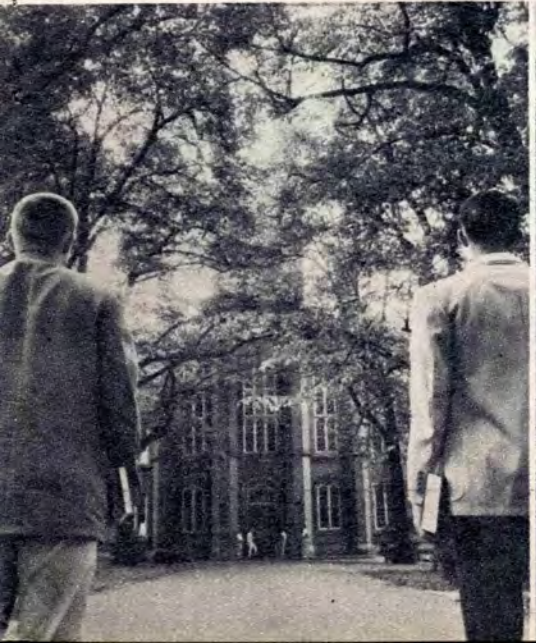
Although not in the student loan field as considered here, a method for paying college expenses on the installment plan is offered through the Tuition Plan. This permits the payment of tuition and other academic fees in monthly installments, while the school or college receives the full amount at the beginning of the term. The additional cost of this service is 4%. Intended primarily as a convenience, the Plan is of special help in cases where parents have "budget trouble" during the fall and winter months when expenses are greatest.

The Tuition Plan is available at about 400 authorized institutions throughout the country. If the contract—always made with the school—is for the conventional academic year, payments are in eight equal monthly installments. If it is for any other period, the payments are made in as many equal installments as there are months in the period. To learn whether or not the school of your choice is on the authorized list, write to The Tuition Plan, Inc., 347 Fifth Ave., New York 16, N. Y.

Stevens Institute of Technology at Hoboken, N. J., has a time-payment arrangement of its own. Called the "Pay-As-You-Go" Plan, it enables students to pay for a full year's cost of tuition, books, laboratory fees, dormitory charges and other school expenses in 12 monthly installments, rather than in lump sums at the beginning of each semester. Two metropolitan banks advance the money to the Institute, and you pay the banks. (If you're under 21, parents or guardian must sign the notes.) Interest charges are 4%. The amount of the loan varies according to individual need.

Say the loan is for $100: then the student or parent signs a note for $104, (*Continued on page 60*)

Franklin and Marshall College



New York University

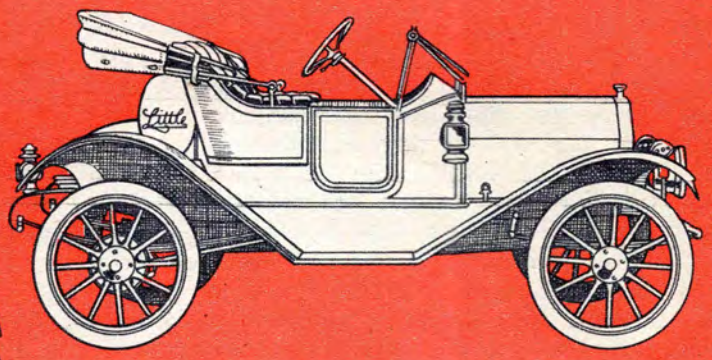
Ohio State University

N.Y.U., which operates five centers throughout New York City in addition to one at University Heights where commencement photo was taken, has more than $1,250,000 on tap to lend needy students. At Ohio State, qualified men students may borrow $500 to $750.

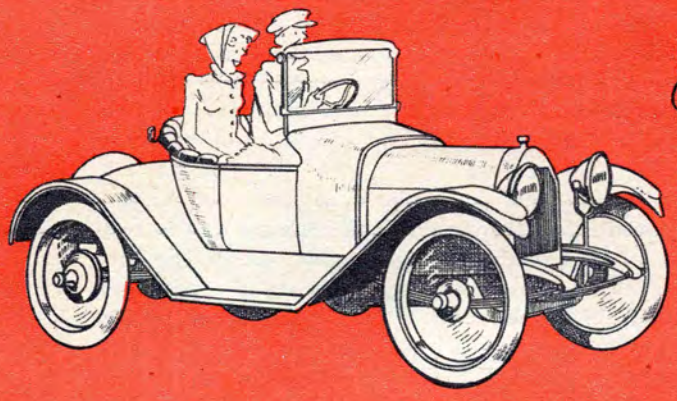
AUTO Progress

By DOUGLAS ROLFE

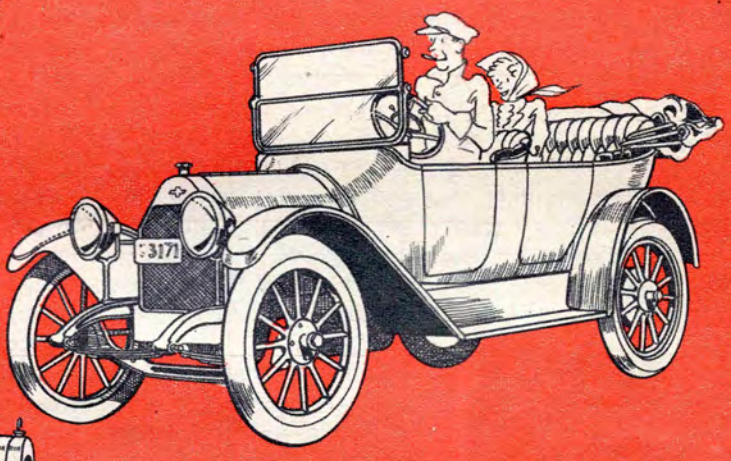
The CHEVROLET Story



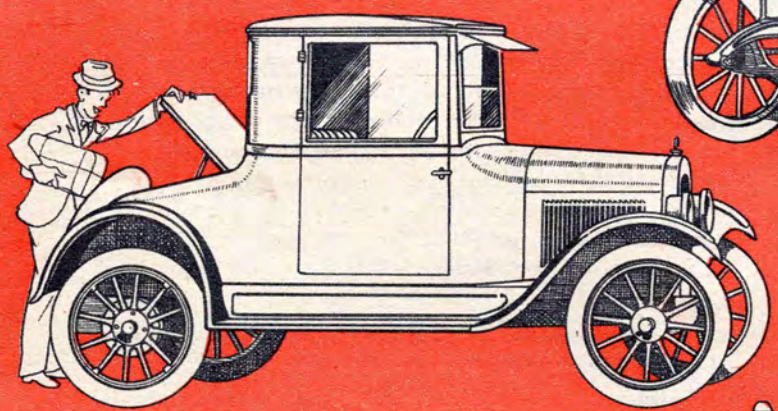
The Little Four, first car to appear under Chevrolet label, had 24 hp 4-cylinder valve-in-head engine which was the basic model of all Chev fours until 1929. This model: 1913 roadster.



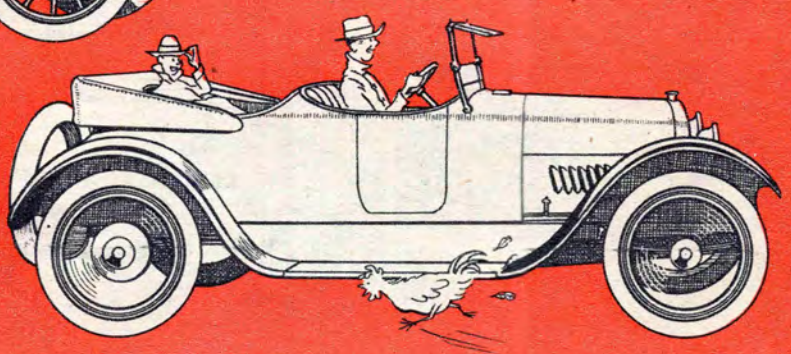
1915 Chevrolet Roadster was a much improved version of the Little Four. It had electric starter, lights and horn. This model sported wire wheels, spare tire.



"Baby Grand" touring car came out in 1916. It had a longer stroke engine with same bore, electric lights, electric horn and self-starter, demountable rims with spare, one-man top and usual split windshield of period. Very chic.



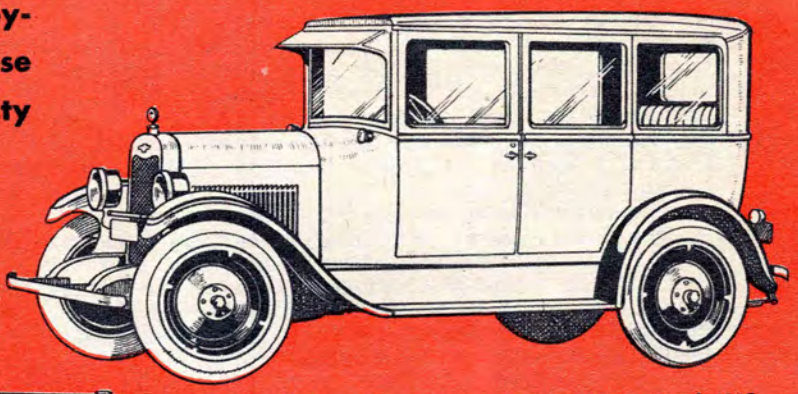
Major style changes in 1923, in bid for low-price market. Same engine, artillery wheels, barrel-type headlights, sun visor. Large trunk space on Superior Utility Coupe shown was big selling point. Prices from $450 upwards.



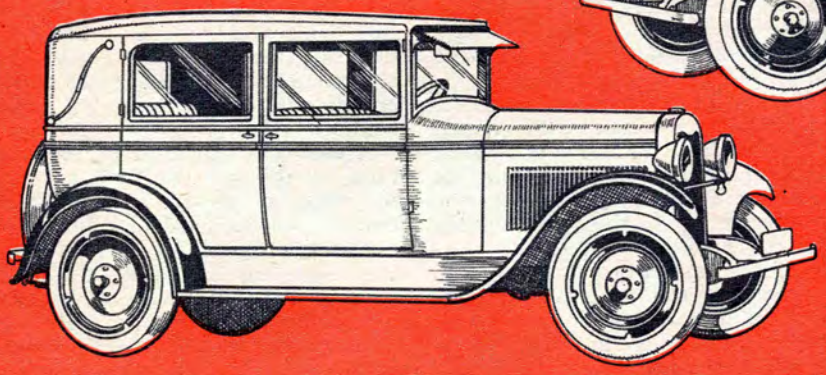
Almost forgotten model, the Chev V-8 model had valve-in-head engine and dual carburetors. Produced through 1917-1918. Model shown is two-door 4-passenger "Chummy Roadster," a type then popular.

This company takes its name from Louis Chevrolet, famed racing driver and designer. First Chevvy was an acquired design—the Little Four, taken over from Little Co. in 1912. By 1913 Chevrolet was producing a four in lowest price bracket, a medium-price six and a bigger six in higher price range. All had characteristic valve-in-head engines. Between 1917 and 1918 the firm also put out a V-8 model having not only overhead valves but dual carburetors. From 1923 till 1929 Chevrolet concentrated on low-price

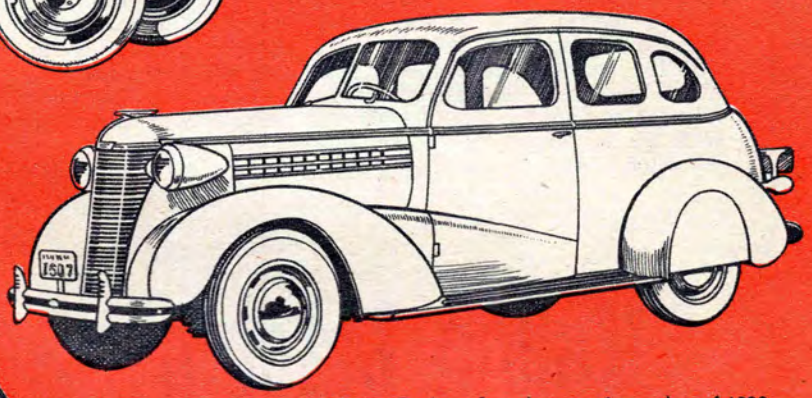
Quality at low cost has been the by-word of this automotive firm, whose product enjoys unparalleled popularity



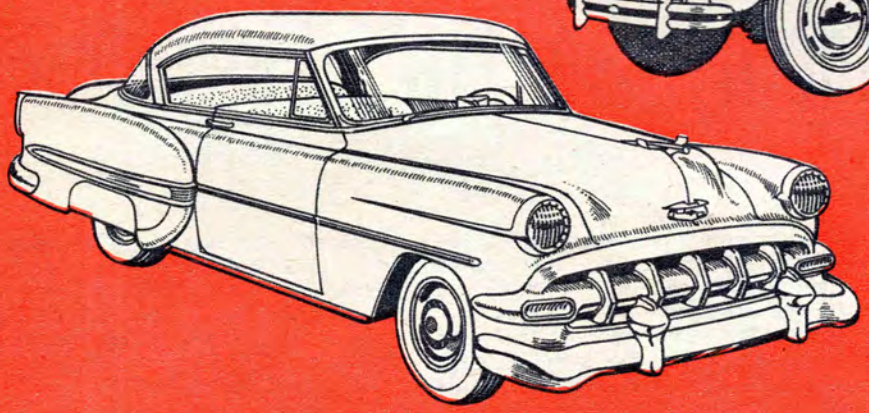
Body styling and superior appointments of 1925 closed models were big sales angle. This five-passenger four-door sedan offered more comfort and economy than most competitors. Steel disc wheels with detachable rims and spare.



Imperial Landau ushered in new 46 hp valve-in-head six. Note wider doors and longer wheelbase. From 1929 on Chevrolet concentrated on an economical 6-cylinder car.

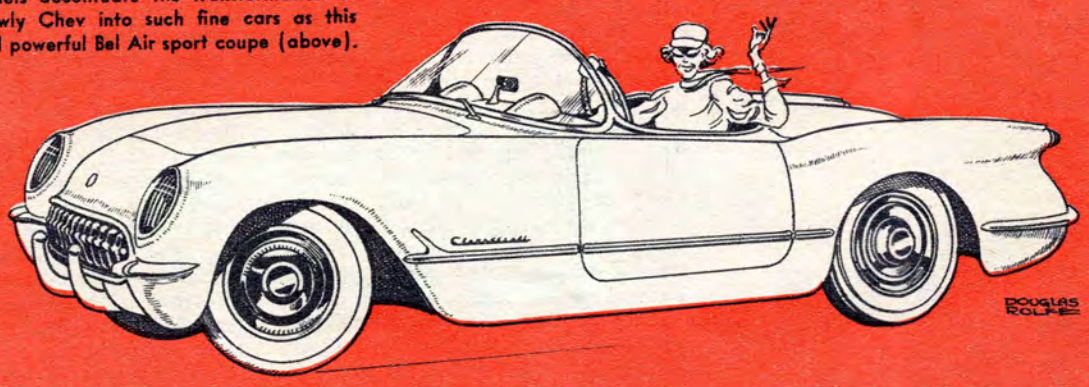


Master De Luxe four-door touring sedan of 1938 with built-in trunk clearly shows trend toward larger and more luxurious design which resulted from bitter competition in the low-price field. Bullet headlights, improved detachable wheels.



Chevrolet Corvette, with plastic body and souped-up 150 hp, 3-carburetor version of the standard valve-in-head six, now in production, is first European-type sports car to be mass-produced in this country.

Current models accentuate the transformation of the once lowly Chev into such fine cars as this luxurious and powerful Bel Air sport coupe (above).



fours and went after the Ford market. The engines were the same small fours; better bodywork and styling soon helped make serious inroads into Ford's monopoly. In '29 firm switched to six-cylinder engines with emphasis on economy of operation, and has been developing this engine ever since. First six was rated at 46 hp. By 1932 it had reached 60 hp, and today the standard six develops 125 hp, while the souped-up version used in the Corvette develops no less than 150. Chevrolet has come far.

Italian Macchi "Saetta" Fighter

■ Despite the fact that the Italian Air Force did not make a spectacular showing during World War II, it did possess some interesting airplanes that make attractive control line models. One of these is the standard first-line fighter used by Italy during the aerial battles over Malta, Libya and Egypt as well as over the Italian mainland.

Aeronautica Macchi developed the Macchi C-200 "Saetta" (lightning-swift) from the long line of successful Macchi record-holding racers. Powered by a Fiat A-74 RC/38 radial, air-cooled engine of 840 hp, the C-200 attained a top speed of 305 mph and weighed only 4850 lbs. This light weight created a very maneuverable plane. However, the comparatively low speed and armament of only two 12.7-mm machine guns proved no match for the Spitfires, Hurricanes and Warhawks.

In order to meet these Allied fighters on more equal terms and be able to better support the faster German fighters, the C-200 was fitted with the German Daimler-Benz DB-601 N inverted, liquid-cooled, 12-cylinder engine developing 1,200 hp. With the bigger engine and the addition of four .30 caliber wing guns the weight of the C-202, as it was now designated, jumped up to 6400 lbs. This cut down the maneuverability somewhat but the speed increased to 345 mph at 18,000 ft. with a service ceiling of 34,500 ft.

Constructed to a scale of ¾" to the foot, our model Macchi will accommodate engines of from .14 to .29 cubic inch displacement. After flying for some time with an O.K. Cub .14, we decided to switch to something "heavier." A Fox .29 was installed in a remodeled nose and control was excellent with flights a bit on the fast side. Plans illustrate both the C-200 and C-202 as well as engines installed upright and inverted in beam and bulkhead mounted fashion.

The first item to be fabricated is the wing, which is started by sawing the plywood joiner to shape in one piece. Cut the balsa spars and taper as the plans describe. Firmly cement the spars to the joiner, thereby automatically forming the correct amount of dihedral. While this is drying cut the wing ribs to shape. Sand smooth and cement the ribs to the spars.

The wing covering material should be butt-joined with cement in order to form the full chord width. Trace the wing outline onto the sheet and cut to shape. Cement the lower covering to the spar, holding it in place with pins until dry. Apply liberal quantities of cement to underside of the wing ribs and attach the lower covering to them, again holding it in place with straight pins until dry.

Bend the landing gear struts to shape with pliers, being sure to make one left and one right-hand strut. Saw the plywood landing gear strut foundations to shape and sandwich the struts between them, using plenty of cement. Make a small hole in the covering at the exact spot where the strut emerges from the wing. Now, slip the strut through this hole, from the top, and firmly cement the plywood assembly to the spar, lower covering and the adjoining ribs. Apply several coats of cement to this joint.

While the wing is drying cut the upper covering to shape. Bevel the lower covering edges in order to fair the covering into the rib contour. Apply plenty of cement to the top of the spar and attach the upper sheet covering to it. Hold this in place with straight pins until dry. Now, add a liberal amount of cement to the beveled portion of the lower covering and to the top of the ribs. Push the covering against the ribs and lower sheet bevel. Again, hold in place with straight pins until dry. Cut the balsa wingtips to shape and cement in place. Set the wing aside to dry.

Trace the empennage onto sheet balsa and cut to shape with a single-edge razor blade or a coping saw. Carve and sand the surfaces to a streamline shape. Cement the elevator halves to the dowel joiner.

When dry, firmly install the commercial control horn and hinge the elevator assembly to the stabilizer using cloth hinges or any other popular method you prefer.

Cut the vertical keel to shape after it has been placed onto ¼" sheet balsa. Be sure to cut away for the location of the wing, stabilizer, fuel tank and bellcrank. The first two openings mentioned must be cut accurately in order to insure proper wing and empennage alignment.

Attach the music wire lead-out lines to the bellcrank by twisting the ends as shown and soldering lightly. Cut the hardwood bellcrank mount to shape and drill a hole for the mounting bolt. Bolt the bellcrank to the mount with washers inserted between them. Firmly cement the bellcrank mount to the top of the wing. It will be necessary to make a small hole in the wing to accommodate the nut. Apply several coats of cement around this joint to insure a secure mounting.

Cement the wing and stabilizer to the sheet balsa keel. While this is drying cut the fuselage formers and bulkhead to shape and cement the formers to each side of the keel while the bulkhead is attached to the front of the keel.

Bend the control rod to shape and then attach to the bellcrank and control horn. Test the control system to make sure it operates without binding. The tail wheel strut should now be bent to shape and imbedded into the keel. Sew this securely to the keel with heavy thread and cement well.

Numerous commercial fuel tanks can fit this plane. Among these tanks are Maeco, Perfect, Froom, Acme, Kap Pak. It may be necessary to cut away a portion of the keel and the front of the wing in order to install the tank. Be certain that the tank is firmly mounted in order to prevent excessive foaming that will cause erratic engine operation. Add plastic tube filling and vent line ex-

Full-size drawings of Macchi are part of Group Plan #954, Hobby Helpers, 770 Hunts Pt. Ave., NYC 59 (35¢)

tensions as well as the feed line. The latter should be long enough to reach the engine needle valve body without kinks. Pass this line through a hole in the bulkhead and we are ready to fit the mounts to our model.

The prototype model used metal triangle mounts of the K&B variety. These come in a variety of sizes to fit many engines. The mounts are firmly bolted to the bulkhead. If it is not desired to use this type of metal mount the conventional hardwood beam mounts can be installed by cutting rectangular openings in the bulkhead and formers and sliding the mounts in place. Use plenty of cement and be sure that the mounts extend as far aft as the alternate installation illustrates. The model can now be planked.

It is important, when planking, to remember to cement the strips to each other as well as to the formers and bulkheads. Start by cementing one strip to each side and to the top and bottom of the fuselage. Hold these in place with straight pins until the cement is dry. Now, add a planking strip to each side of the four strips already in place. Continue in this fashion until the fuselage is completely covered. It will be necessary to taper and bevel each strip as the planking progresses in order to insure complete coverage and close fitting.

The cockpit fairing may produce a bit of difficulty if not approached correctly. It is suggested that this fairing be ignored during the initial planking, then tackled as separate unit by trimming the strips as required to form the lower contour. The cockpit opening is cut to shape after all planking is completed.

The nose block is carved from medium-soft balsa. This is made in two pieces joined at the horizontal center line. First, trace the top view of the nose onto the blocks and saw to shape. Repeat this for the side view and carve roughly to shape. Hollow the block to clear the mounts and engine. Firmly cement the blocks to each other and to the plywood bulkhead. The tail cone is made by cementing two ¼" thick pieces of balsa to each side of the keel. Cement this in place and set the model aside to dry thoroughly.

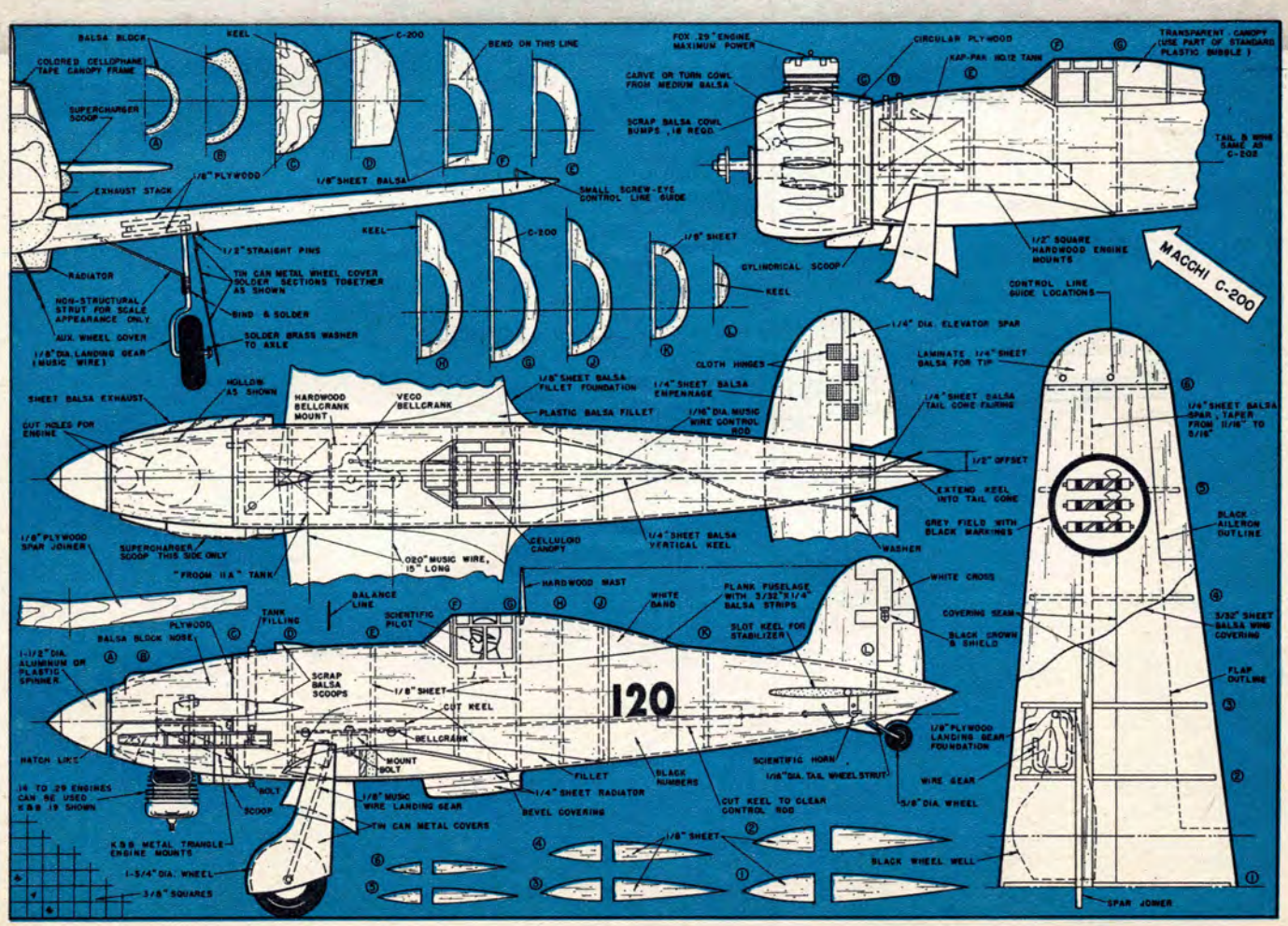
While the model is drying the radiator, exhausts, and scoops can be cut from scrap balsa. It will be noted that the exhaust stacks are built up from thin sheet balsa with the separations inserted at an angle as shown in the top view.

Returning to fuselage, trim the planking strips, nose block and tail cone with a sharp knife. Extra care should be taken with the nose block because of the peculiar shape of the upper portion. It is advisable to have the commercial spinner that you intend to use on hand when shaping the nose block, to insure good fit.

Complete building instructions are available on the full-size plans.

Modeled in the popular ¾ inch to the foot scale is this World War II C-200 and C-202 fighter

By WALTER A. MUSCIANO



A STUDY IN AERODYNAMICS

Aerial Horse-Shoe Game

New fun with oldest "whirlybird" —the boomerang. Technique wins!

By LAWRENCE H. CONOVER

■ Here is a fascinating three-dimensional take-off on the old horse-shoe game. And with boomerangs selling for a buck a throw, anybody can join in.

This is how we do it. A four-foot circle is marked off. We throw from the center of it into the wind. The boomerang goes out, turns, swoops up, and comes gliding back downwind. If you are sharp it lands with a *calumph* near the circle. It is spinning madly all the while, and whirring like a duck's flight. Naturally the man closest to the circle wins. However, you must make two successive wins to gain one point. The person making a winning throw gets the lead. (Throws first.) Once you establish the lead for a round (one throw each), every win you make counts a point. If you lose the lead it takes two wins to get your next point. More than two can compete.

Now for the fancy business. It is easy to throw a boomerang, but learning to control this whiz-spinner requires practice.

The "boomer" is held with the curved top surface of the wing *always inside.*

The plastic boomerangs will not fly properly as they come from the factory. You must add pitch, by heating the center in hot water, or with a heat lamp. *Never use an open flame.* Twist about one-eighth inch incidence into each wing, noting the leading edge of one is inside and the other out. More incidence increases the lift, hastens the swoop upward, and shortens the orbit.

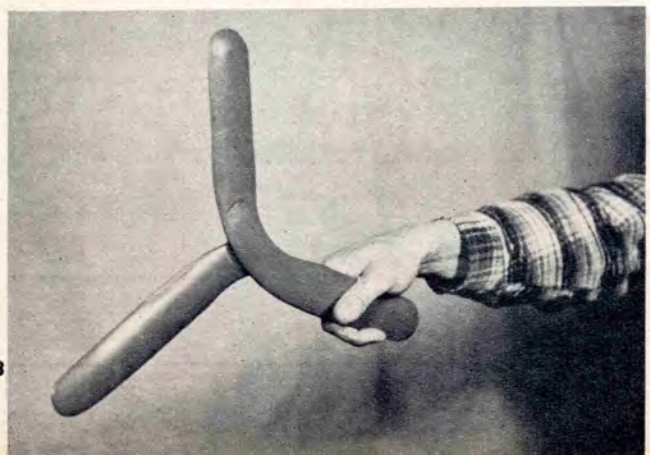
Now for the throw. Refer to the diagram: *A.* This is a "normal" throw calculated to land in the circle. Release is at shoulder height. It applies in winds from 10 mph down to zero. Dead calm is the best weather for beginners. Any wind causes the flight paths shown to move downwind, thus landing past the circle.

B. Here is a large orbit caused by low pitch. It requires a stronger throw. It does best in calm air, and is a spectacular operation. The throw sends it far out, it circles way to the left (looks like it will land in the next county), then comes in from behind. If the throw was hard enough it will come *whuffing* past overhead, pause, and slide back for a landing at your feet.

C. Landing ahead of circle. An elevated throw occurs when you release earlier, and above shoulder height. It causes a deep swoop on the downwind leg. Use this in windy weather. It requires a slightly "flat" throw, a bit more into the wind.

D. Landing downwind. The "flat" throw (wing parallel to the ground) is almost useless, and can result in a broken boomerang. At the top of the high climb it falls back and loses rotational speed. A variation of this, however, is useful.

The "Lang" three-blader made from two broken plastic boomerangs. Throwing sequence shown from right to left. This is release position.



Initial launching stance. Emphasizes spin imparter to all boomerang throws. Flight of three-bladers differs from that of conventional ones.

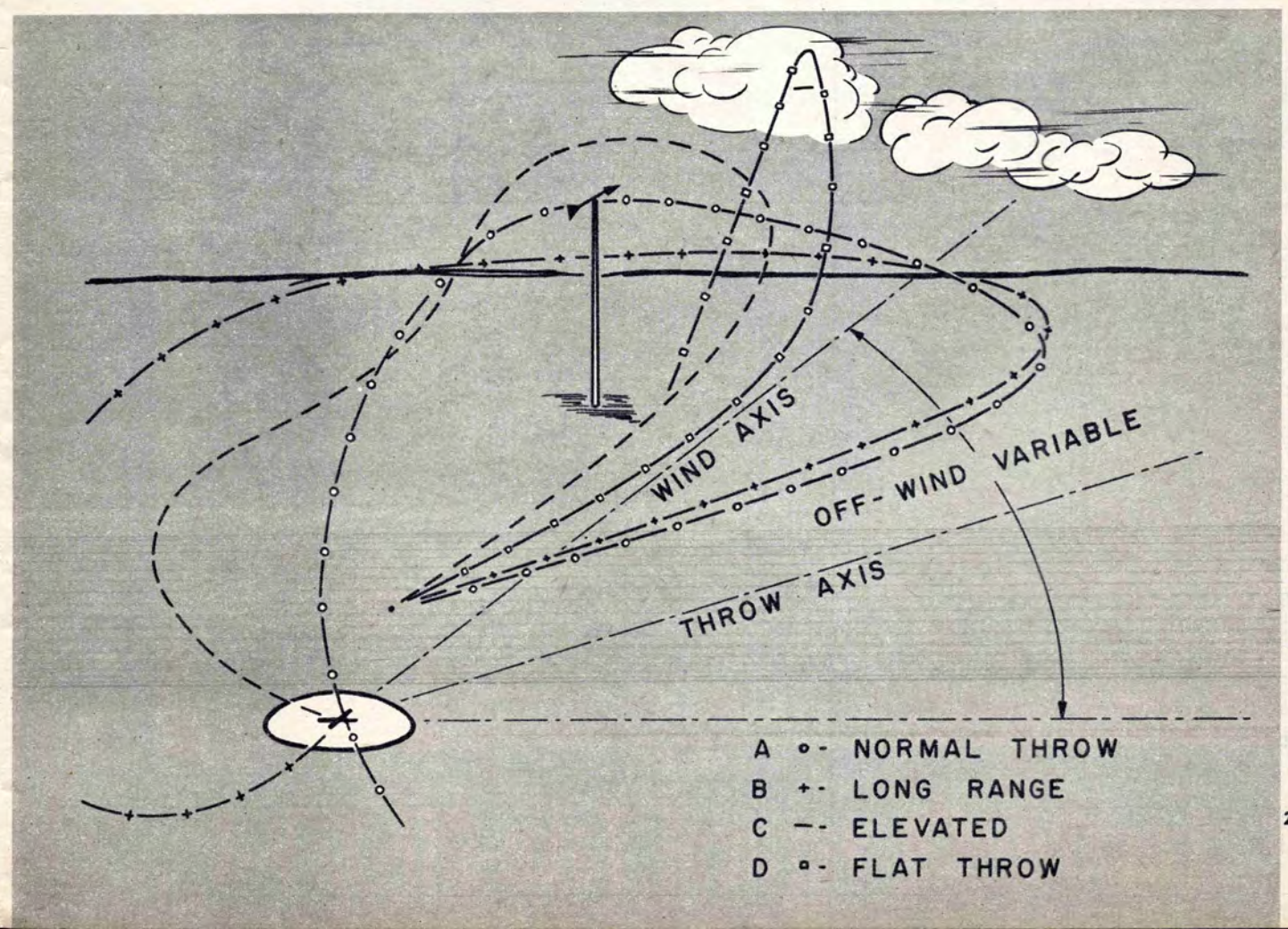
Cross section of the boomerang is an airfoil and in its flight it obeys the laws of aerodynamics. Correct launching position is important.

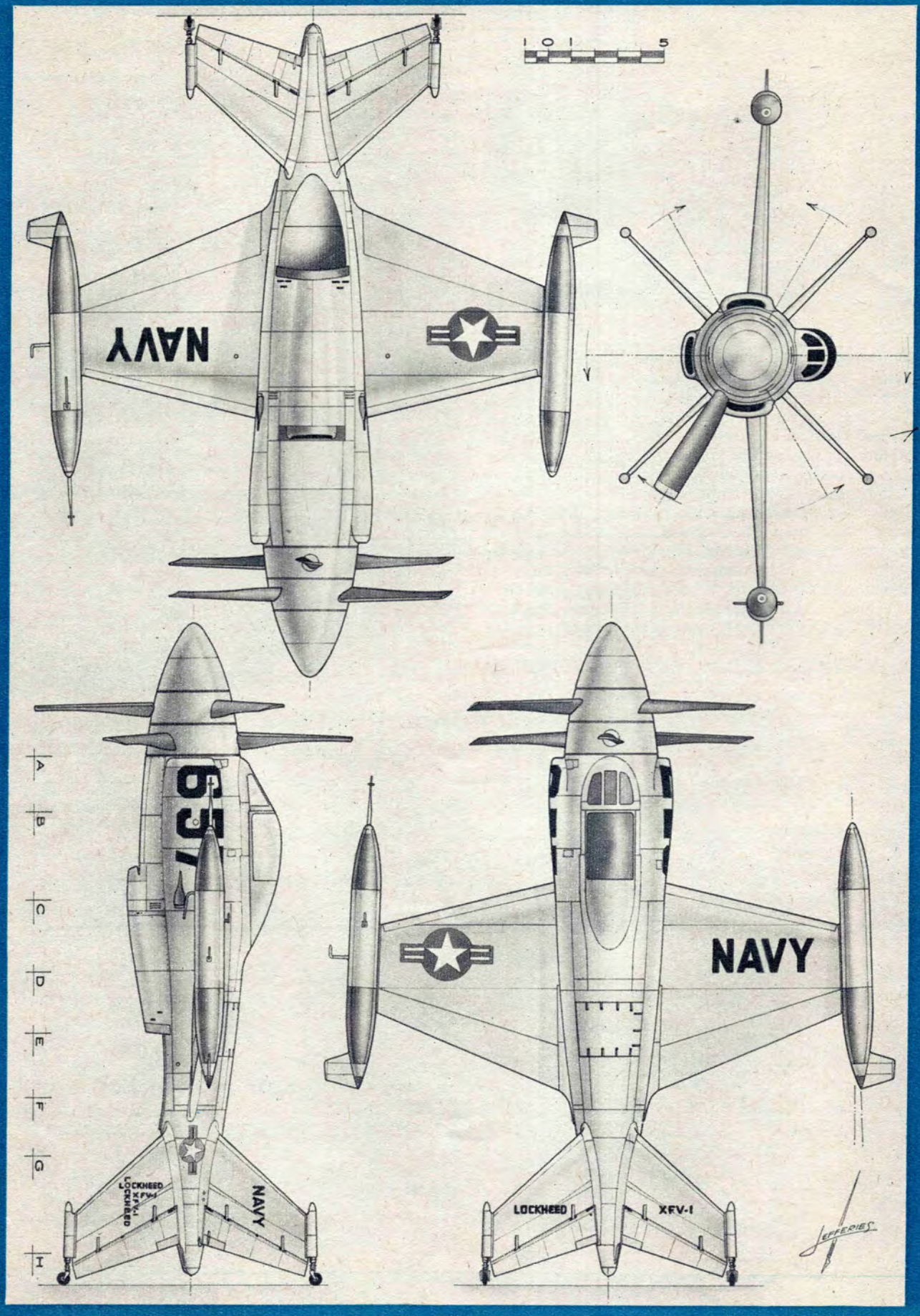
Wind axis control. The opposite of a "flat" throw is of course the "vertical" (or normal) throw. Actually a normal throw in calm weather is a bit flat, about five degrees off the vertical. As you approach a true "vertical" launch the missile goes further into the wind and lands ahead of you, even though completing an orbit. Finally too much "vertical" results in a dive into the ground far in front of you.

Side control. Never throw to the left of the wind. As much as a quarter off the wind (to the right) is sometimes needed. You can adjust the lateral axis by launching more to the side you wish to land on.

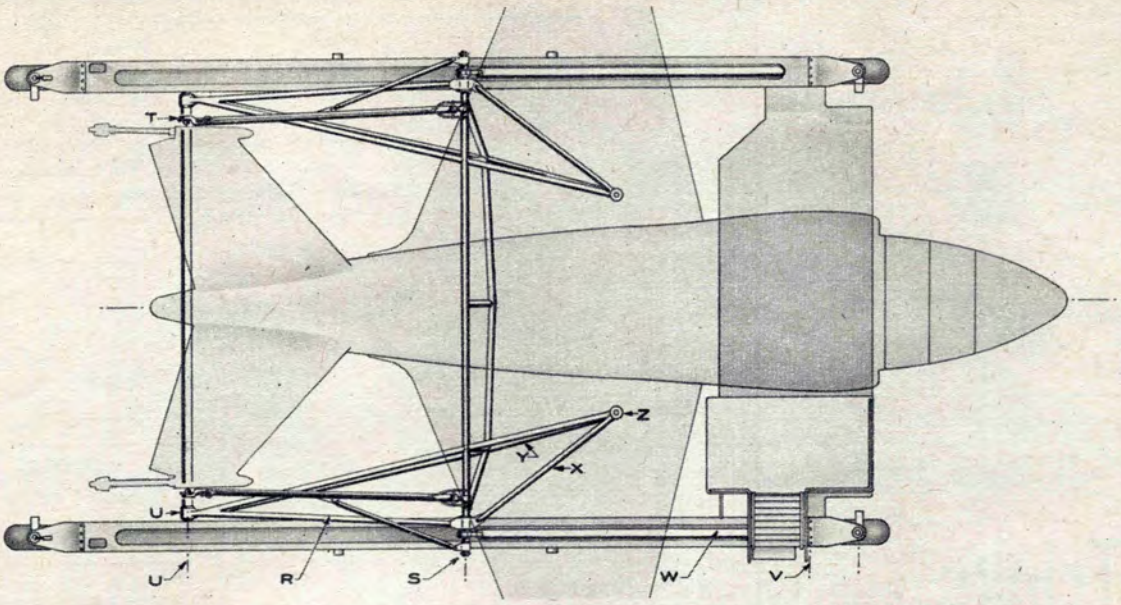
In windy weather try to keep the flight path close to the ground. Don't throw hard. We have flown in 20 to 25 mph winds with reasonable accuracy, but it isn't easy.

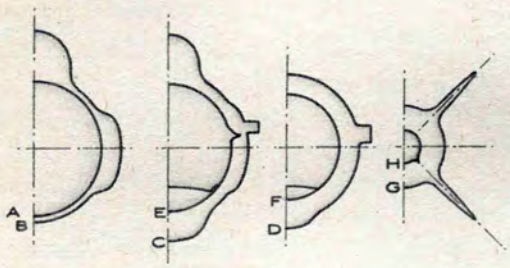
The most important thing (*Continued on page* 74)





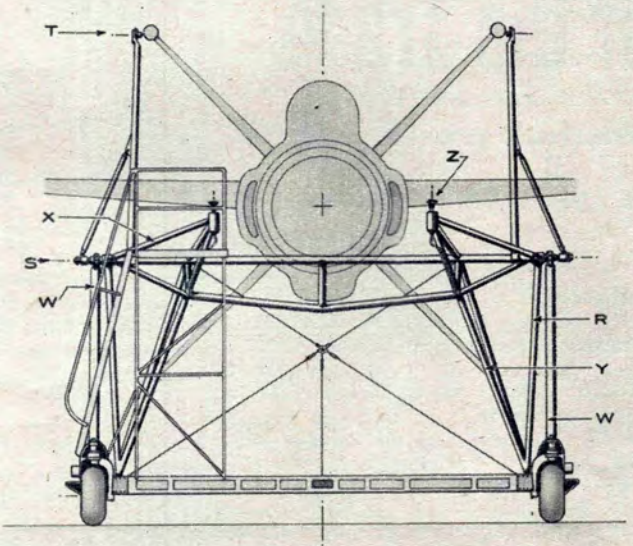
Lockheed's Vertical Take-Off XFV-1

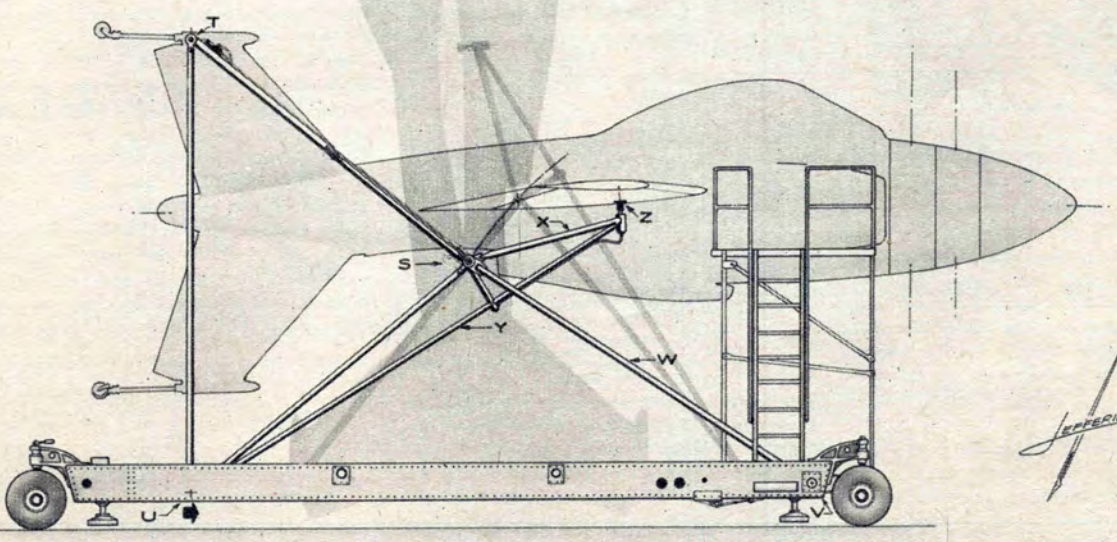




SECTIONS

SECTION AT ROOT



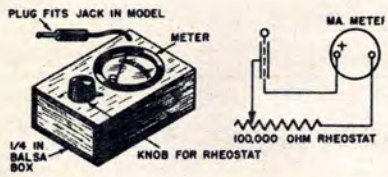


The VTO airplane is one of the most radical developments in aviation in the last fifty years. Not a helicopter, not a convertiplane, it derives its vertical flight characteristics from the fact that its thrust is greater than its weight. Landing is the most critical phase of the flight as it requires precise adjustment of power. Lockheeds XFV-1 is powered by a 5500 hp Allison T-40 turboprop engine turning a six-bladed, contra-rotating Wright Turboelectric propeller. The pilot's seat is equipped with gimbals and rotates to keep same relative position whatever plane's attitude.

R/C Tricks of the Trade

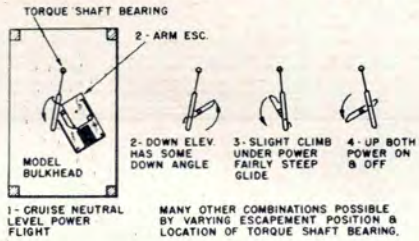
Practical, proven projects by top radio control men

● John Worth (Hampton, Va.). This simple gadget consists of a receiver test meter mounted in a box along with a potentiometer of about 100,000 ohms. When used normally for testing the receiver, the "pot" is always turned to zero (might be wise to mark the panel prominently, and make *sure* the knob is always turned to zero when a reading is taken). The pot is used to check the relay setting; even gas tube receivers



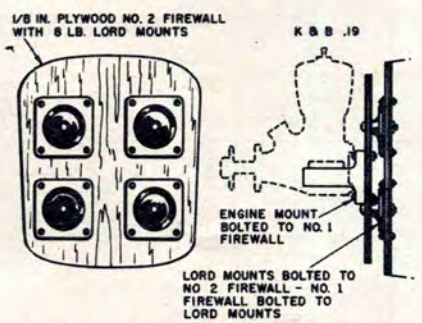
often do not have a large enough pot for this purpose mounted in the plane. Hard tube receivers normally have no pot at all, so this idea is of special use with such equipment. John suggests mounting the meter and pot in a box made of 3/16" or ¼" thick balsa; this will take plenty of abuse in the field without transmitting so much of it to the meter, as is the case with the usual metal box.

● Major Hank Bourgeois (Havelock, N. C.). Hank uses a 2-arm Bonner escapement for elevator control; the escapement is tilted a bit off from true vertical, so that the two neutrals and two operate positions afford four distinct elevator positions. The sequence is as follows: 1. "Cruise neutral" for normal level flight. 2. Down, for dives. 3. Neutral after Down set to give slight up effect under power, but dive in the glide. 4. Up, for steep climb, loops, etc. The various elevator positions might be


TORQUE SHAFT BEARING
2-ARM ESC.
MODEL BULKHEAD
2-DOWN ELEV. HAS SOME DOWN ANGLE
3-SLIGHT CLIMB UNDER POWER FAIRLY STEEP GLIDE
4-UP BOTH POWER ON & OFF
1-CRUISE NEUTRAL LEVEL POWER FLIGHT
MANY OTHER COMBINATIONS POSSIBLE BY VARYING ESCAPEMENT POSITION & LOCATION OF TORQUE SHAFT BEARING.

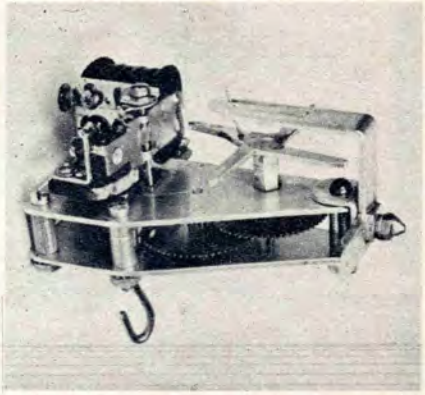
shifted by changing the angle of the escapement, or by altering the pivot point of the follower, with relation to the escapement shaft. Haywire test set-up will show what results will be. Slots instead of plain holes will allow escapement to be shifted in plane, as desired.

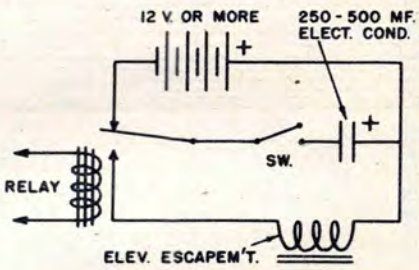
● Gordon Gabbert (Dallas, Tex.). Having reached the conclusion that we shock-mount the wrong thing in our radio planes, Gordon tried to confine the vibration to its source—he shock-mounted the engine. He claims the results are surprisingly good. An added dividend is that the engine has lots more protection in a nose-down landing, and the


1/8 IN. PLYWOOD NO. 2 FIREWALL WITH 8 LB. LORD MOUNTS
K & B .19
ENGINE MOUNT BOLTED TO NO. 1 FIREWALL
LORD MOUNTS BOLTED TO NO 2 FIREWALL - NO. 1 FIREWALL BOLTED TO LORD MOUNTS

jolt is not transmitted to the fuselage so heavily. The drawings show the set-up Gordon uses on a scale Piper Tri-Pacer; the No. 2 firewall is attached firmly to the fuselage stringers, and into it are fitted four 8-lb. Lord mounts. No. 1 firewall is bolted to these, and carries the engine. Radial or beam mounting may be used; engine cowl, if any, is attached to No. 1. Three Lord mounts—not tried —might work as well.

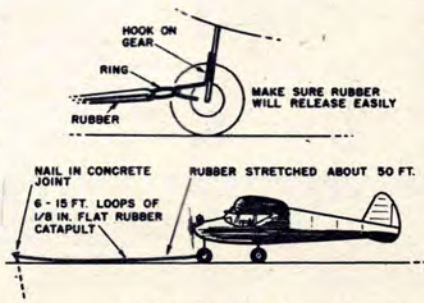
● Claude McCullough (Ottumwa, Iowa). Failing in his search for a super-heavy duty escapement to operate the elevator in his big "Wizard," Mac made his own, based upon a low-resistance Sigma 4F relay. The 4-arm wheel is geared down, so that it turns once for each 30 turns of the rubber hook (gears came from Wilson Tiny Atom motor kit). This gives plenty of power—but heavy pressure on relay armature. To





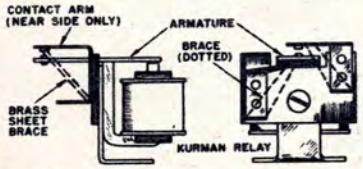
make this operate reliably, Mac uses a condenser discharge system, with 12 V. taken from other battery packs in the plane. When RY operates, condenser is discharged through escapement winding, which slaps over and returns so fast that no second claw is required on armature. Open SW when plane is not in use, otherwise slight condenser leakage will slowly drain battery.

● Fran McElwee (S. Plainfield, N. J.). Ever have a heavy, hot plane that just didn't want to take off, when there was no wind to help it? Fran had this situation at the 1951 Nats in Dallas; Navy R/C Bomb Dropping Event (now defunct) required R.O.G.—wind at Dallas was practically nil (yep, we *can* have a Nats without wind!). It was found that the plane could be "catapulted" off the ground by use of a long stretch of model-plane rubber. Forward end was attached to a nail driven part way into a tar expansion joint in the concrete runway; a hook was arranged on front wheel of trike gear that would disengage as the


HOOK ON GEAR
RING
RUBBER
MAKE SURE RUBBER WILL RELEASE EASILY
NAIL IN CONCRETE JOINT
RUBBER STRETCHED ABOUT 50 FT.
6-15 FT. LOOPS OF 1/8 IN. FLAT RUBBER CATAPULT

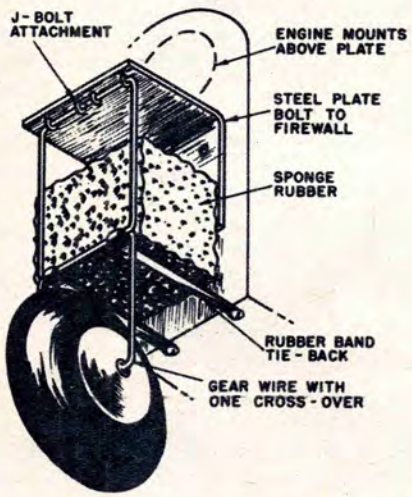
pull on the rubber ceased. Arrangement worked fine. Should be good for some points under present AMA R/C rules, though less than given for Unassisted R.O.G., of course; plane can't ground-loop.

● H. G. McEntee (Ridgewood, N. J.). Some difficulty was encountered in retaining the adjustment of the widely used Kurman relay, due to the long overhanging arms. Also, when connected to a 3-tube receiver, the relay was found to produce an audio howl, by feedback through the receiver base to the A.F.



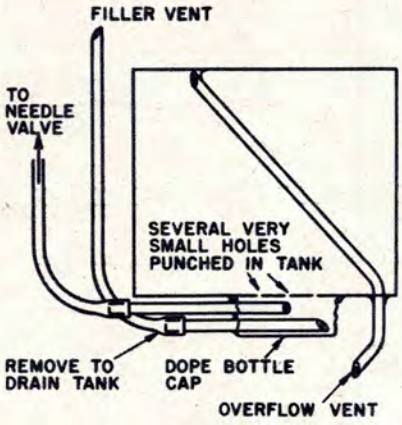
tubes. Both problems were cured by addition of thin sheet brass braces to the contact arms; one was soldered from the lower bend of the attachment lug out to the end of each arm—leaving room for armature clearance, of course. Braces make contact adjustment a bit more difficult, but once set, the relay will hold adjustment indefinitely, even though receiver rattles around fuselage in hard landings.

● Clay Freese (Elmhurst, Ill.). Having encountered the usual problems of attaching a nosewheel to his plane so that it would track well for take-offs, stand nose-down landings without damage to gear or to fuselage, and still afford real shock-absorbing action, Clay evolved the



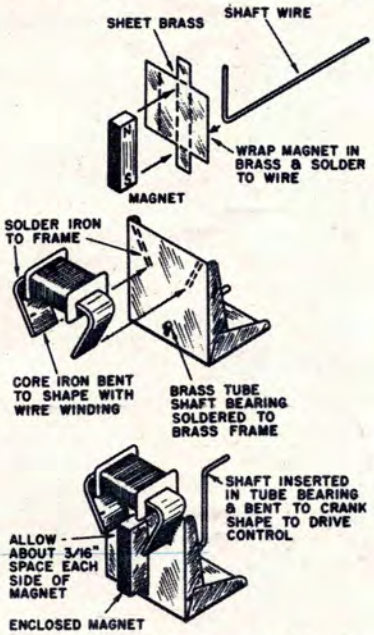
scheme shown here. Gear is supported on a lightweight steel plate, bolted to firewall. Spring steel nosewheel wire (with one crossover) is attached to front of plate by J-bolts. Heavy sponge rubber packed back of wire takes the shock and holds wheel in normal position. Sponge rubber eventually gets oil-soaked, of course, but is easily replaced, as it is held in only by rubber bands.

● George Trammell (Gulfport, Miss.). George likes to try violent maneuvers with his R/C jobs, has had trouble getting reliable fuel feed from ordinary tanks, doesn't like the special maintenance required with standard pressure tanks. His stunt tank is shown here (it must be good—we have seen several



variations on the same idea used successfully by flyers in other parts of the country!) Size of tiny holes in tank, and size of lower sump govern length of time engine will run when ship is upside-down. Tank may be drained completely of fuel by removing the tubing to the filler-vent. Looks like a good addition to make to your ship, when you add elevator control.

● E. Paul Johnson (Des Moines, Iowa). One of the earliest and most successful users of pulse control, Paul has always favored the simple types of actuators for his rudder, and has worked out several very good ones. A recent design that can be made with no machine work whatever, and that requires only a simple bar magnet, is illustrated. Magnet

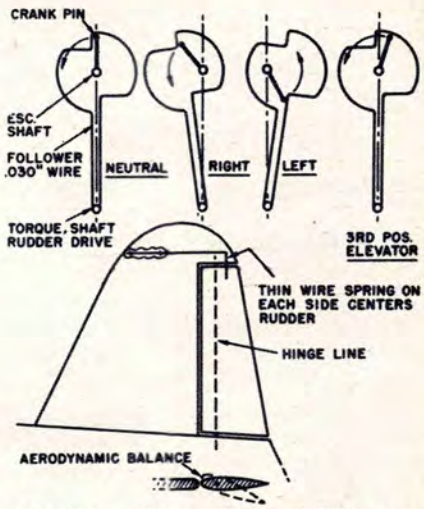

SHEET BRASS
SHAFT WIRE
WRAP MAGNET IN BRASS & SOLDER TO WIRE
MAGNET
SOLDER IRON TO FRAME
CORE IRON BENT TO SHAPE WITH WIRE WINDING
BRASS TUBE SHAFT BEARING SOLDERED TO BRASS FRAME
SHAFT INSERTED IN TUBE BEARING & BENT TO CRANK SHAPE TO DRIVE CONTROL
ALLOW - ABOUT 3/16" SPACE EACH SIDE OF MAGNET
ENCLOSED MAGNET

is held to shaft by wrapping shim brass around it (no need to solder to the alnico itself). Windings are put on the iron core, then assembly is soldered to brass frame. Core iron could come from defunct large relay, or auto voltage regulator. The ends of the core act as stops for magnet. Winding depends upon voltage available, power needed. Try 600 turns No. 30 as a starter.

● Jim Schenck (Pittsburgh, Pa.). A hot contest flyer, Jim also loves to experiment. Plane shown is a special modified Rudderbug with extra wide fuselage, to hold an 8-mm movie camera! Camera case was removed to cut weight, and lightweight case substituted. Camera may be installed to shoot either downward or out side of fuse. First time cam-

era was actually operated, motor vibration caused skipping—entire film ran through with a rush! Since then fine pix have been made. Camera is set off by thermal device detailed in past R/C column. Plane weighs 8 lbs. complete, flies very well. Dark dots under wing tips are little wheels; Jim says he wore out several tips landing on hard-surface runway before wheels were installed.

● R. E. Schumacher (Encino, Calif.). Schuey has a neat deal to use when a Compound escapement is utilized for elevator control on the third position. If the normal loop type of follower is used for the rudder (elevator actuated by another escapement, through electrical contacts on the Compound) he found he still had a little rudder when in the



elevator position. A new follower was bent up from .030 music wire, as shown. There is no overtravel—rudder snaps to center as soon as either rudder position is released; also, actual time rudder is off-center, when going through unwanted rudder positions is cut ⅔. Rudder must have centering springs; these are very light music wire. Rudder also has aerodynamic balance.

San Francisco's BUSY BOATMEN

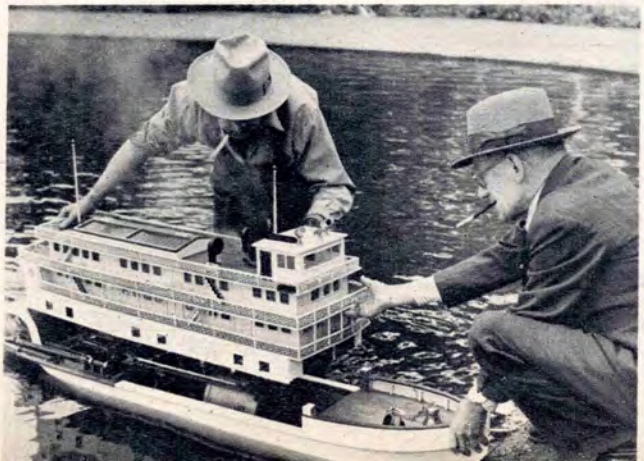
PHOTOS by LOUIS JACOBS, JR.

Courtesy BUICK Magazine

Miniature boats, authentic in every detail, turn park lake into heavy-traffic ocean.

■ Casual Sunday strollers near Spreckles Lake in San Francisco's Golden Gate Park are often startled to find its usually calm waters swarming with a miniature navy. Graceful yachts cleave its surface, tiny ocean tugs, sternwheelers, and steamships chug along under their own power, while speedboats with engines screaming race in circles leaving rooster tails behind. Supervising the bustling activities are members of the San Francisco Model Yacht Club who range in age from the teens to the eighties. The craft they sail, their own handiwork, are noted for authenticity and high-quality workmanship. Majority are real sailing enthusiasts, holding frequent races and regattas. The remaining members are steam or powerboat fanciers engaged in radio control, free or tethered running of their craft. On Sundays, the lake is crowded with visitors and model yachtsmen.

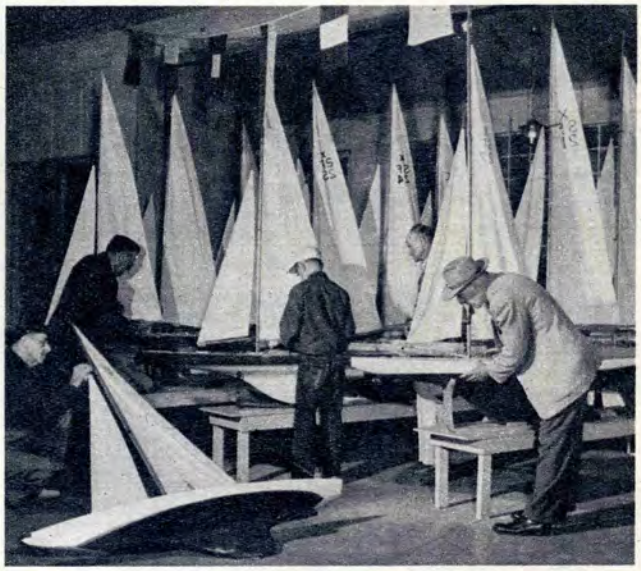
The beautiful sternwheeler river boat "Delta King" has removable superstructure which permits the owner to get at the steam engine.



Two powerboat enthusiasts getting set for a run on the lake. Minute adjustment of the engine is important to get full benefit of power.

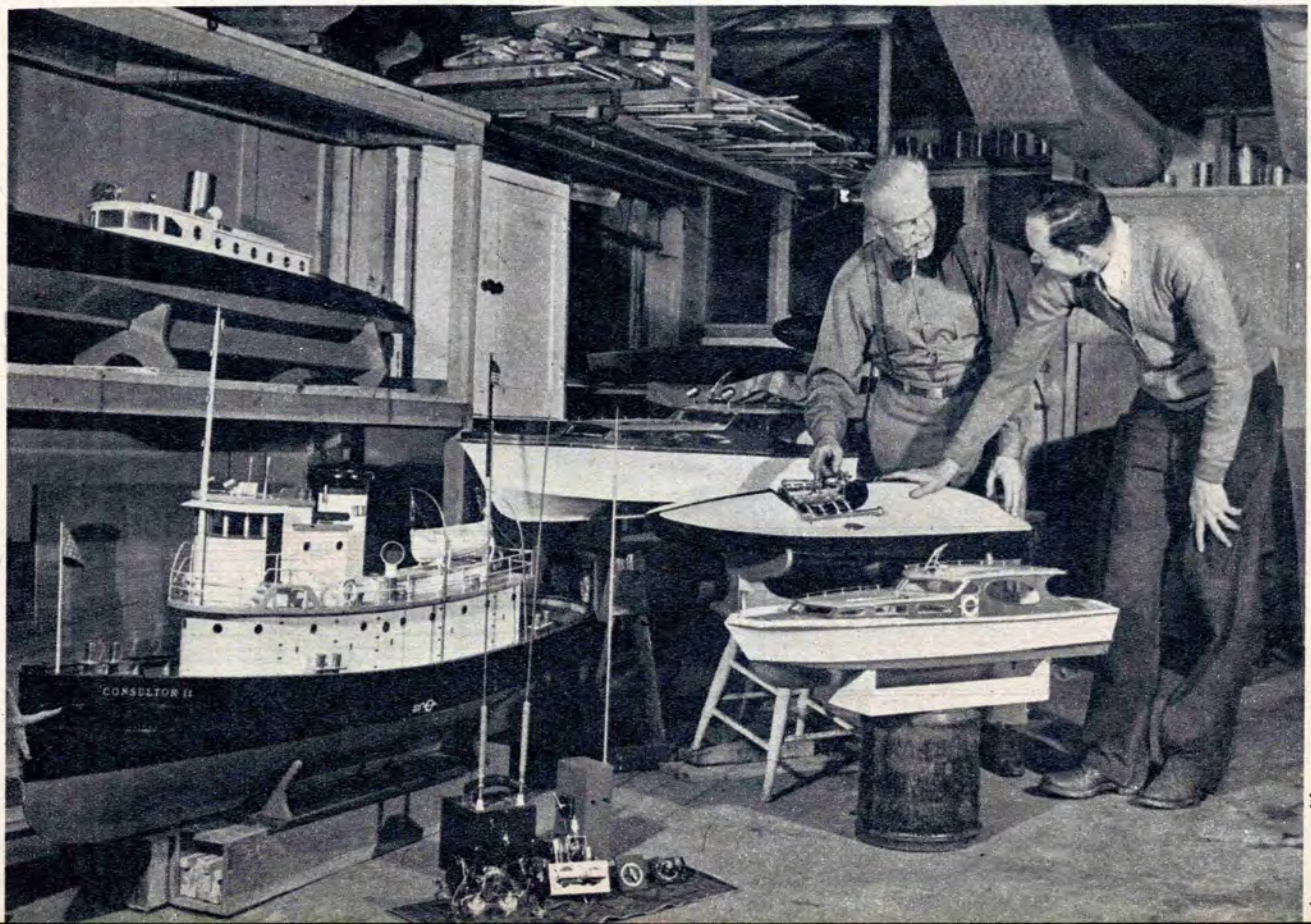
A variety of gas engines power the boats. This one is a four-cycle one-lunger equipped with magneto and rocker-arm operated valves.

Typical sailboat hull in construction. Workmanship is painstaking, and follows closely shipbuilding practice. Planked portion is being shaped.



About two-thirds of the members are sailboat enthusiasts. These are "X" type craft. More than 100 yachts can be stored in clubhouse.

Photo shows variety of boats owned by members. A number are radio controlled. Racing boat has 4-cylinder water-cooled engine.



Most practical and most easily duplicated turbine jet aircraft model developed here or abroad is this control line cutie . . .

Jaunty Alouette

By ROY L. CLOUGH, JR.

■ This model was developed with the idea of proposing a new competition class: control-line speed, turbine jets. We further propose this class be limited to engines of .049 displacement; that nozzle cross-section area be held to 6½ sq. in.; that no afterburners be permitted; that no dollies or drop-off gear be used and the minimum line length will be 25 feet.

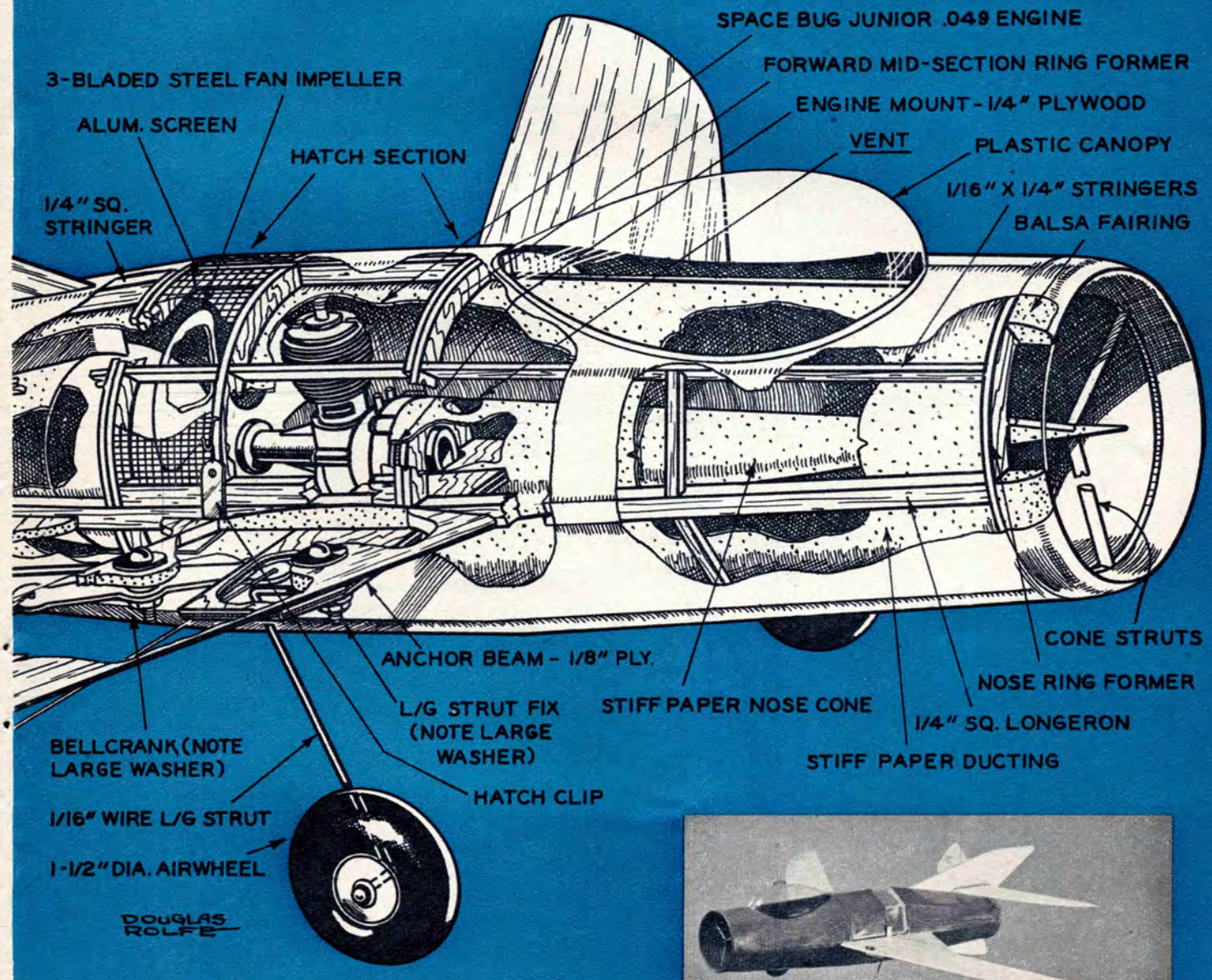
Now, what the heck? Are there not enough different classes already? Why try to introduce another one, and why the limitations?

Well, look around at present speed, free flight and stunt jobs. For several years now the basic design philosophy has been static. It is pretty well settled how to go about designing a good model in any category. So many people have been refining the things for so long that today it is no longer a question of how to design, but rather which engine, with which prop and which fuel seems most suited to the weather conditions on the day of the official flights.

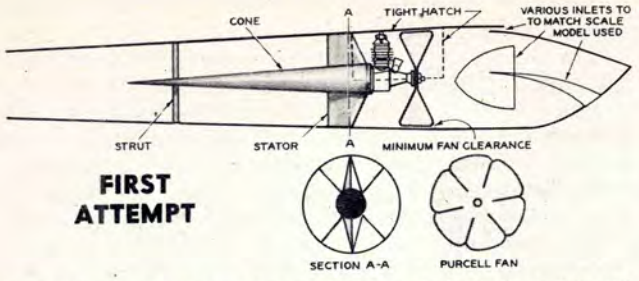
The pioneering is well over; today the emphasis is on handling technique and know-how. Therefore it seems timely to introduce something new, which is not settled, a new area of design experimentation with plenty of opportunity for the fellow with ideas, imagination and a desire to use them. We think the ducted fan speed model is a natural for this purpose.

The proposed limitations we consider wise. By keeping the displacement down the confusion of several classes within a category is avoided. Outlawing afterburners makes sense because of the inherent fire hazard and because it will place emphasis on efficient duct and fan construction; the elimination of dollies and drop-off gear should produce some interesting functionally integrated designs; and the specification of a minimum line length of 25 feet will prevent minimal-thrust jobs from cheating take-offs via centrifugal force.

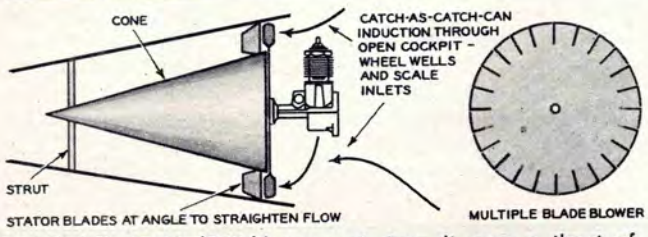
Sound interesting? Then a good time to start is



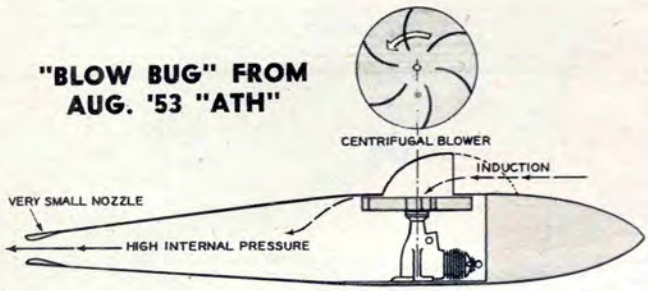
What a scaled-up, man-carrying fighter version of the model might look like is illustrated on this issue's front cover.



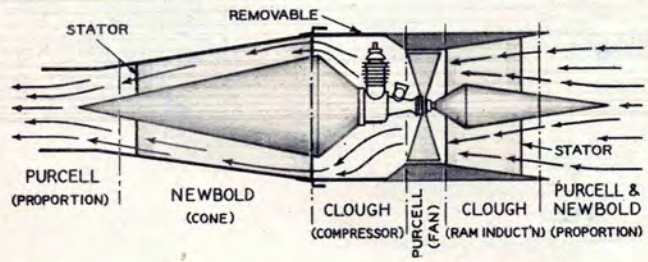
Purcell's Ducted Fan (original turbine jet) duplicated in this model set-up produced 3 oz. of thrust with K&B .049.


CONE
CATCH-AS-CATCH-CAN INDUCTION THROUGH OPEN COCKPIT – WHEEL WELLS AND SCALE INLETS
STRUT
STATOR BLADES AT ANGLE TO STRAIGHTEN FLOW
MULTIPLE BLADE BLOWER

Newbold's Duct (British) was next step. It gave a thrust of 3¼ oz. when driven by a Cub .074. Used rim-bucket type blower.



Clough's Pressure Jet was extremely simple in its method of operation. Gave 1.8 oz. thrust with Wen-Mac .049 (on hot fuel).



"Meld" Duct borrowed from everybody. It offered over 2 oz. thrust when utilizing an Infant .020. Ram effect was apparent.

The Clough Duct (with appreciation to Purcell and Newbold). This produces in the neighborhood of more than 4 oz. thrust with a Space Bug .049. Construction of the airframe is now much easier.

right now, and a good model to start with is *Jaunty Alouette,* a swallow-winged blowhard that will probably revise heavily upward any estimates you may hold at present on ducted fan performance.

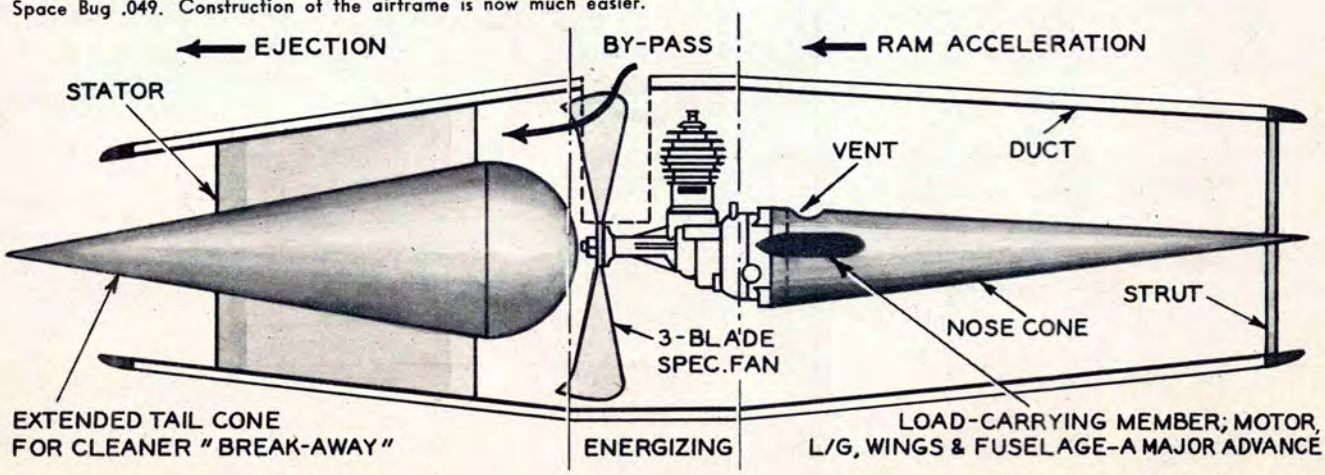
The original model, several times re-built, weighs over 9½ oz., without fuel in the tank. This is about 3½ oz. over what is generally considered top weight for a free flight .049 fan. Yet it becomes airborne in 10-20 feet, depending upon the surface, and tops 40 mph in flight—which is the scale equivalent of a big jet edging Mach 1. It does this, incidentally, on a moderate-performing engine. We purposely did not use a really hot mill in the job because we wished to emphasize design efficiency. This means that with a hot .049, such as the Thermal Hopper, and with a reasonable weight of 7½ oz. (which will be easy to hit because we took no regard whatever of excess glue, dope and wood weight) you will have no trouble bettering the already impressive performance of the original by a good margin.

The theory behind the design of this duct evolved out of quite a bit of experimentation with several arrangements including the original Purcell ducted fan basics; the British Newbold duct and the author's centrifugal blower pressure-jets and experiments with improved induction methods, and turbine design.

Four small sketches accompanying this article show how the present duct evolved:

The man who started it all, Thomas Purcell, Jr., used a flower petal fan running in a tight tube, that is, with very little clearance between the fan tips and the walls. The hatch must fit tightly for best results with this arrangement, and, properly put together and carefully tuned it can produce about 3 oz. thrust with an .049. It is quite well suited to scale-type models because the diameter is not excessive. The drawbacks are chiefly structural difficulties, tying the various components together without excessive weight or weaknesses developing.

After Purcell the most significant departure is the Newbold duct by an English builder of that name. This is radically different, using a rim-bucket type blower (similar to full scale), a pusher engine installation, cone choke in the tail pipe and flow straightening stator buckets behind the blower. This type produces thrust quite efficiently—provided the blower is properly located, and from a number of examples we built of this one, we found the blower location to be very critical. Moving it ahead or back ½" might cause thrust fluctuations of as much as 50% and further, unlike Purcell's duct, which works best with a tightly fitted fan, the Newbold duct gave best thrust with the fan running completely unenclosed! No provision for induction was made, except open wheel wells, open cockpit and small scale-type induction holes in the wing roots. 3¼ oz., .049 thrust.



The centrifugal pressure-jet, as exemplified by the author's *Blowbug* (Air Trails, August '53) was an attempt to achieve extreme simplicity through a different approach, the use of high internal pressure and very high velocity jet. This system is not as efficient as a ducted fan, but it is extremely simple to throw together, no particular skill being required to produce a model that will fly quite well. The thrust of this job varied from 1.75 to 2 oz., depending upon how well and tightly the hatch fitted.

The fourth sketch shows an attempt to tie together the best angles of Purcell and Newbold, with a few of the author's findings. We called this the "Meld" Duct and ran it quite exhaustively through a series of bench tests. With a "war weary" Infant Torp .020 this job produced a static thrust of over 2 oz. When in motion it appeared to pick up somewhat more push from ram effect. We knew then we had something.

The "Alouette" duct is basically this arrangement, cleaned up a bit, with the engine turned around, a by-pass installed and given a new fan of improved performance.

Theory: Accelerate the greatest mass of air possible to the greatest speed possible for any given power.

Method: Air is picked up by direct ram (in flight) and is accelerated down the induction tube by squeezing it between a cone choke and the duct walls. At the engine location the air is suddenly allowed to expand, increasing its heat soaking from the engine and the air pressure in front of the fan; that is, adequate cooling is insured and the heat recovery helps the fan. Now, right at the place where the air is set in motion by the fan there is a bypass slot which allows external air to siphon into that low-pressure area, further increasing the reaction-mass. As the air moves into the tailpipe it is choked down, increasing its velocity and reducing the back pressure under which the fan operates, and, as it flows by the stator vanes which support the cone, rotation energy imparted by the fan is recovered which further increases the thrust and ejection rate at the nozzle.

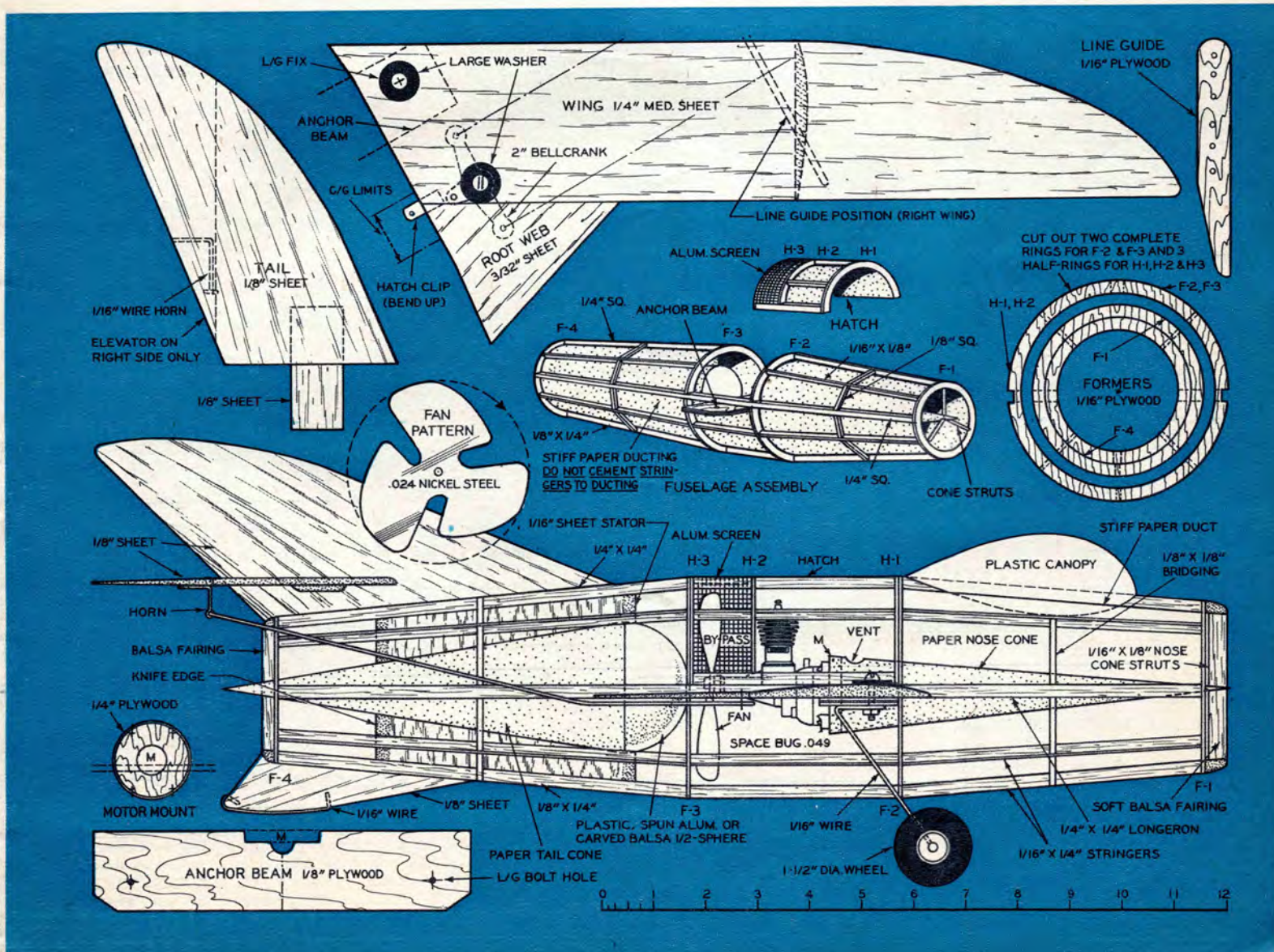
And that is the reason that *Alouette* can take off and hold the lines tight at altitude—with the engine four-cycling!

Construction of this model is the result of considerable ducted fan experience—an all-out attempt to eliminate in one fell swoop the structural bugs which have dogged these machines in the past. Note that all major masses and highly stressed components have been tied rigidly together with a central anchor beam: exit endless maintenance grief.

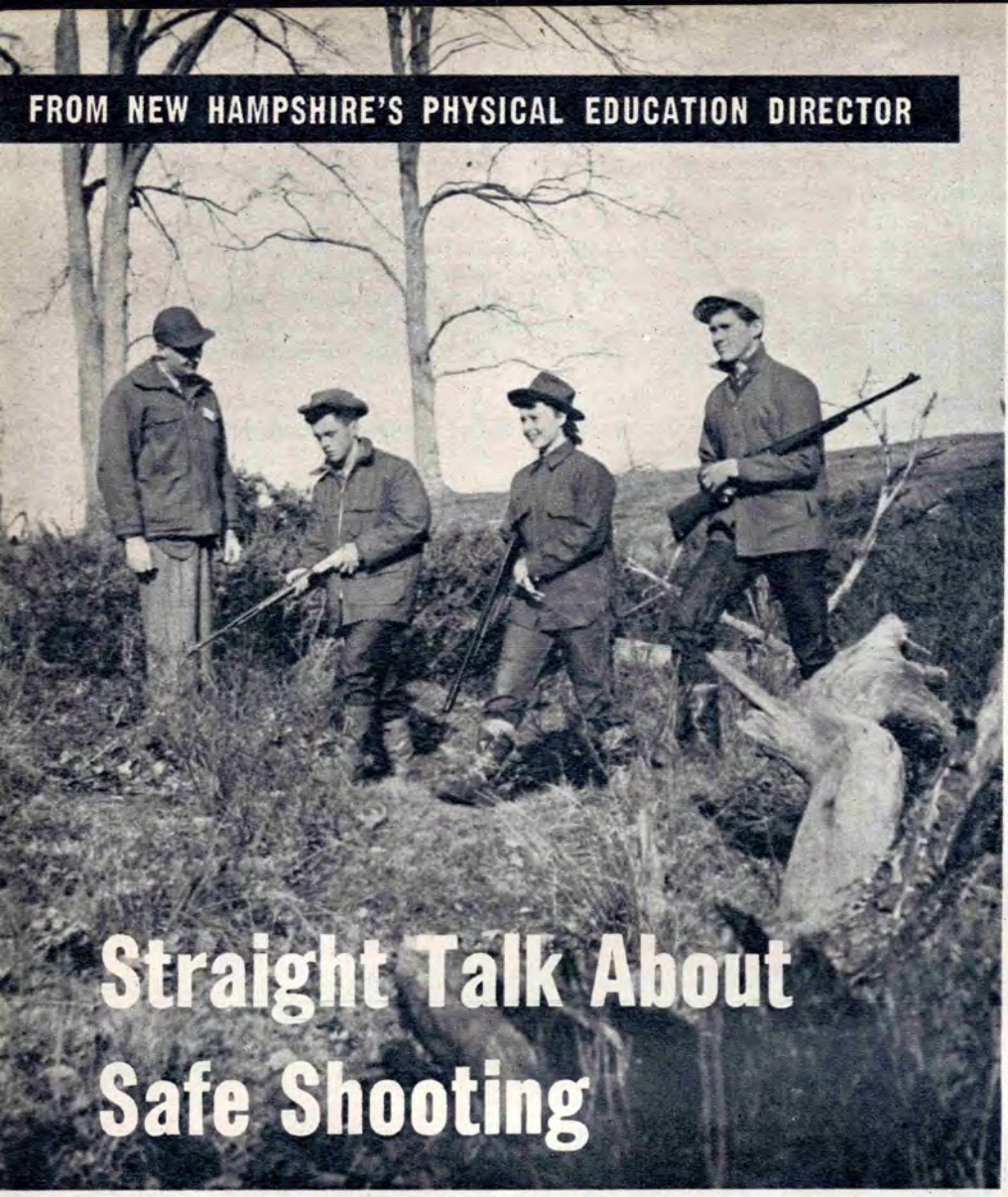
Instead of building up the ducts from edge-cemented 1/32" sheet after the usual fashion (it invariably cracks and buckles out of shape), we used art paper. This may be purchased at any stationer's and is variously called art paper or "construction paper." It comes in 9x12" sheets in two weights and assorted colors. Use the heavier weight for the ducts and light stuff for cones; always bend with grain.

Complete building details on full-size plans.

Full-size "Alouette" plans are part of Group Plan # 954 (Hobby Helpers, 770 Hunts Pt. Ave., NYC 59; 35c.)



FROM NEW HAMPSHIRE'S PHYSICAL EDUCATION DIRECTOR



Straight Talk About Safe Shooting

Practical suggestions and friendly advice from a man well qualified to conduct a Firearms Safety Program

By JACK F. GEORGE

Author George is State Director of Physical Education for the State of New Hampshire. New Hampshire has established the first school-sponsored Firearms Safety Education Program in the nation. The project has been a cooperative effort of the State Department of Education and the Fish and Game Department. John Dodge, Educational Officer of the New Hampshire Fish and Game Department, and the author established the program in New Hampshire schools. New Hampshire's approach to the perennial problem of guns and youngsters has received national acclaim from many school systems in the United States as well as from the National Rifle Association.

■ Are you one of the many thousands of red-blooded Americans who enjoy the great sport of hunting? Or perhaps you enjoy the use of firearms through target shooting or just plain plinking. Whatever use you have for a rifle, shotgun or pistol, make certain that you know your firearm thoroughly.

Shooting is one of the most fascinating of hobbies. It *can be* one of the safest pleasures and it can also be one of the most dangerous. Just what should you know and what conduct is proper when you are associated with firearms and ammunition?

Remember the safest gun is the one that *is not* loaded. The first step is to be sure your gun has the "action open." By this we mean that the firing mechanism has been withdrawn in such a manner as to make the firearm unable to operate. Each type of gun involves different safety conditions. The rifle is capable of carrying a bullet a great distance. The .22 rifle can kill at a distance of one mile! Higher powered rifles are dangerous at distance of three miles! Shotguns, of course, have a much shorter range, but they are just as dangerous within that distance. Know all parts of your rifle, shotgun or pistol. *Be sure* you know exactly how your safety works before you start to use the firearm. Practice using the safety before using ammunition.

Last year 1500 Americans were killed or injured with firearms. One third of these were people under 21 years of age. Most of these accidents happened at close range. The greater percentage of the casualties were careless and inexcusable. Remember when you have a firearm in your possession—*cut out the horseplay!*

It seems that there are four types of would-be hunters who cause gun accidents. These include: THE CARELESS, THE UNTRAINED, THE OVERANXIOUS, and lastly THE IMPROPERLY CLOTHED. Are you one of these? If you are, you can soon get out of that classification by taking the time to obtain knowledge concerning your firearm and provide opportunity to practice with it.

Most of us are not gunsmiths. If your gun is not working properly, have a gunsmith check it. *You* are not the expert! Keep your barrel free from obstructions. Many barrels have been known to blow up because of dirt in this part of the gun and have caused the death or serious injury of the person firing it.

A knowledge of ammunition and what it can do is essential in all good shooting. Again, the wrong kind of ammunition in a firearm can injure the operator and destroy the gun. Use only the calibre of shell designed for your firing piece.

Proper gun handling is a "must" for the true sportsman. Treat every gun as though it were loaded. Always point the muzzle in a safe direction. Be sure of your target. These are rules which you can't afford to break. They are really not so hard to learn and practice.

How to move gun over wall safely—the action is open (above). Large photo shows instructor Jim Dee of Olin Industries in the field with Dover, N. H., High School students.

When you come to a wall or fence, do you try to hurdle it in good track and field style, with gun in hand, or do you find a safe place for your firearm—then cross the obstruction and pick up your gun and continue?

When game is in view, do you make every effort to get the first shot away—the heck with accuracy and general direction—just squeeze this one off with a prayer! Of course you don't. Careful aim does two important things. First, it makes positive identification of your game, and second, you will take home more meat for the table.

How about clothing when you hunt? Is it worth a second thought to plan your attire? You better have the proper *color* of clothing or else some trigger-happy Harry will be giving you a real case of lead poisoning. Bright red and coal fire have been found very successful for hunting. Don't wear brown, black or white. You're right—these colors correspond to those of our game animals. Men have been shot because their socks had white tops. Why? The white stripe resembled the flag (tail) of a deer or the flash of a rabbit. Why take a chance? Only the soldier is interested in camouflaging himself. This is not your purpose; remember there are always more men in the woods than deer!

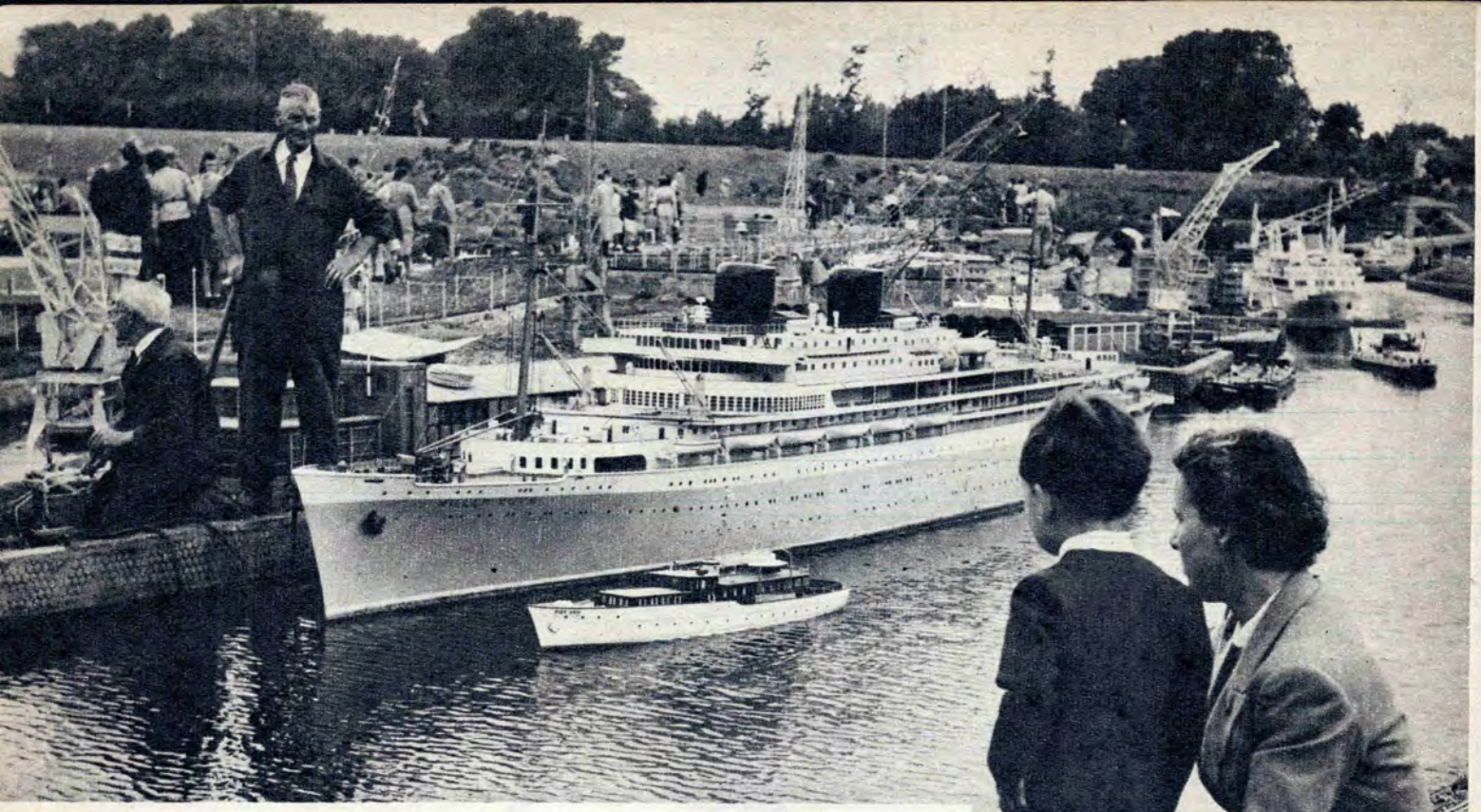
Don't carry a loaded gun in your car. In most states, this is illegal anyhow. It is dangerous to you in the first place, and you know what? Most of our game does not travel the highways! Bullets ricochet. It just isn't good sense to shoot on or near the highway. Roads curve, bullets glance off obstructions and always this practice leads to trouble.

Good common sense is really the basic ingredient for proper handling of firearms. If you follow the Ten Commandments of Safety your association with firearms and ammunition will always be a pleasant one. These are:

1. **Treat every gun with respect due a loaded gun.**
2. **Guns carried into camp or home or when otherwise not in use must always be unloaded.**
3. **Always be sure barrel and action are free from obstructions.**
4. **Control the muzzle of the gun, even if you stumble.**
5. **Be sure of your target before you pull the trigger.**
6. **Never point a gun at anything you do not want to shoot.**
7. **Unattended guns should be unloaded.**
8. **Never climb a fence or tree or jump a ditch with a loaded gun.**
9. **Never shoot a bullet at a flat, hard surface or the surface of water.**
10. **Avoid alcoholic drinks before or during shooting.**

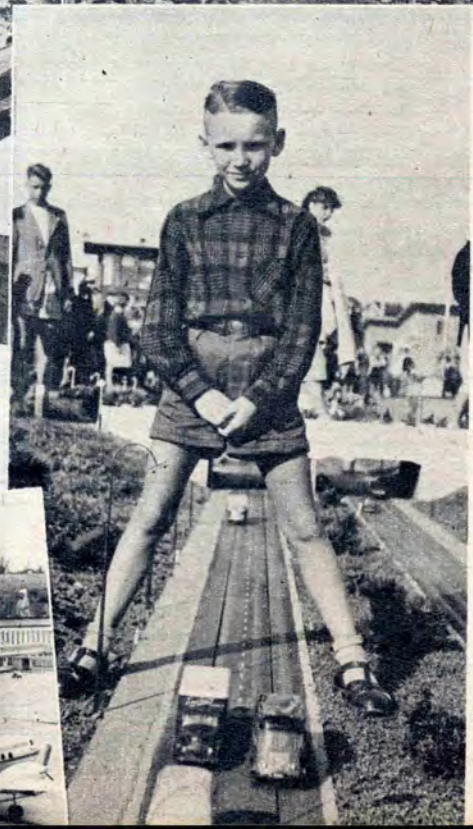
If you are interested in complete information regarding Firearms Safety Education, write to the National Rifle Association, 1600 Rhode Island Ave., N.W., Washington, D.C., or talk to your high school principal. He may have the information for you. Often, your local Rod and Gun club is willing to work with young people in this very important phase of safety education.

BUSY PORT of *Madurodam*..



.... is just a MODEL!

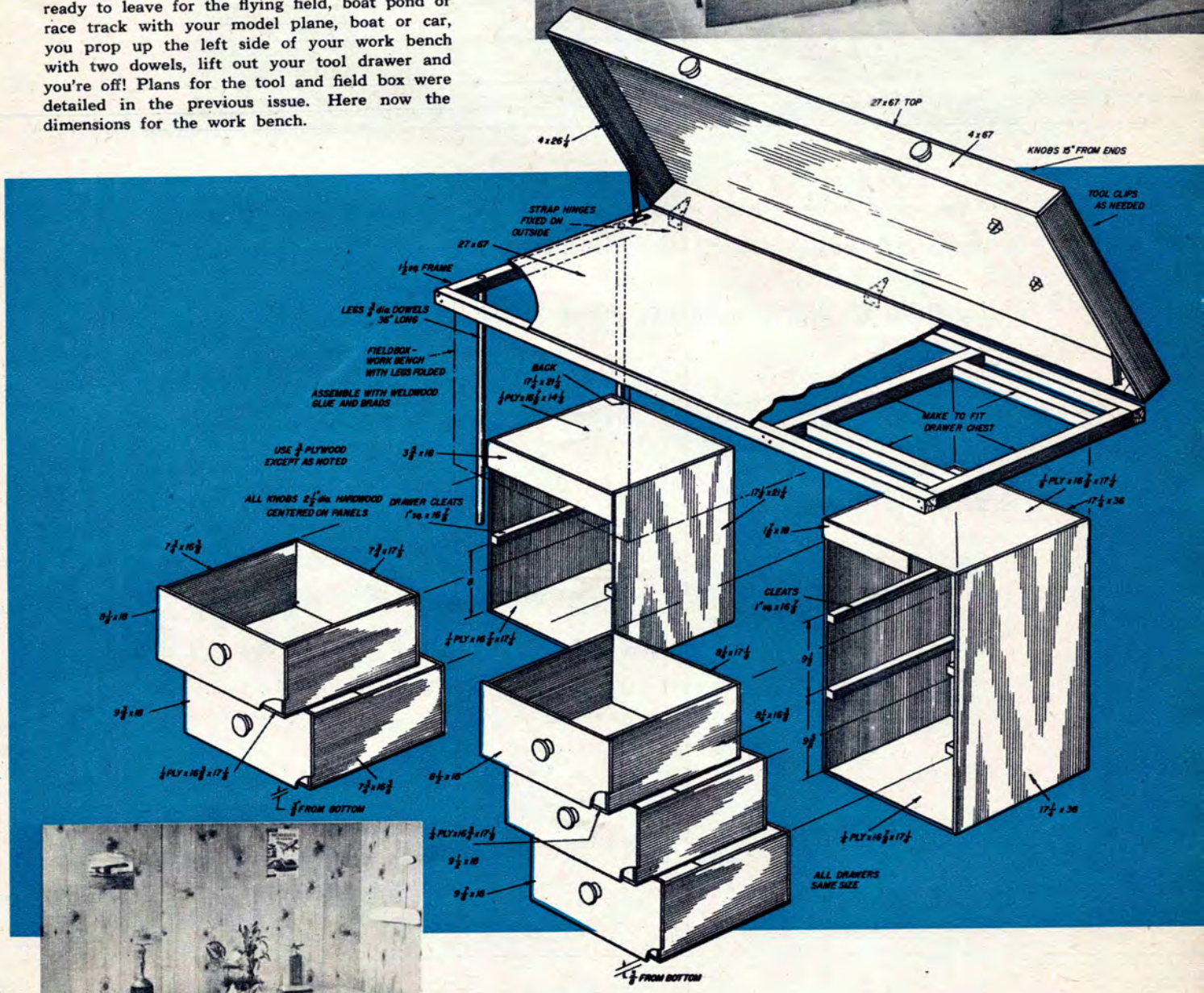
Miniature town in Holland is memorial to students who fought Nazis. Admission fees support sanitarium

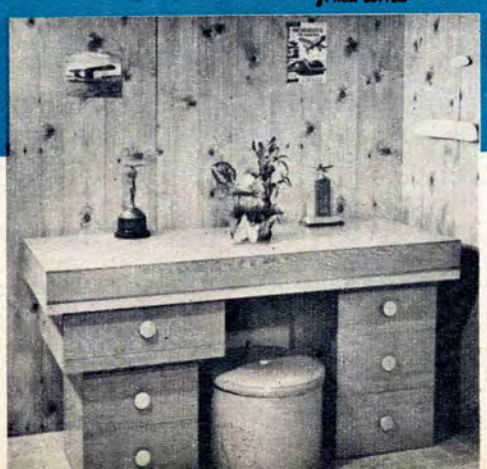


HOME and SCHOOL WORKSHOP PROJECT:

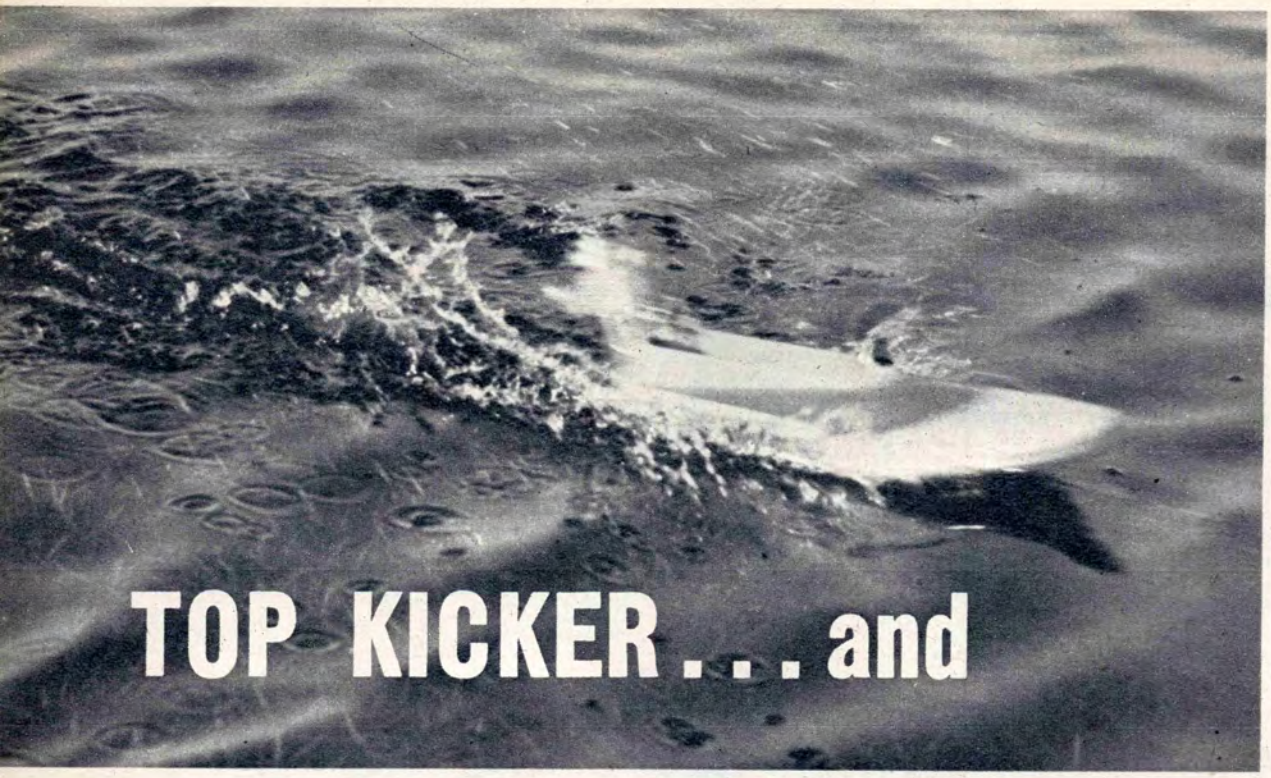
Novel Work Bench Features Travelin' Tool Box

■ Certainly one of the most attractive work benches we've seen, this handsome storage cabinet and work table has an oversize tool box. Not only oversize but it's quite unusual in another respect—it's a travelin' tool box. When you're ready to leave for the flying field, boat pond or race track with your model plane, boat or car, you prop up the left side of your work bench with two dowels, lift out your tool drawer and you're off! Plans for the tool and field box were detailed in the previous issue. Here now the dimensions for the work bench.


27 x 67 TOP
4 x 67
KNOBS 15" FROM ENDS
TOOL CLIPS AS NEEDED
STRAP HINGES FIXED ON OUTSIDE
27 x 67
1½ sq. FRAME
LEGS ¾ dia. DOWELS 36" LONG
FIELDBOX-WORK BENCH WITH LEGS FOLDED
ASSEMBLE WITH WELDWOOD GLUE AND BRADS
BACK
MAKE TO FIT DRAWER CHEST
USE ¼ PLYWOOD EXCEPT AS NOTED
ALL KNOBS 2½" dia. HARDWOOD CENTERED ON PANELS
DRAWER CLEATS
CLEATS
¼ FROM BOTTOM
ALL DRAWERS SAME SIZE
¼ FROM BOTTOM



With cover lid lowered, your workbench-portable tool box combination is indeed a fine-looking piece of furniture. Five drawers are similar; only the tool drawer is different.



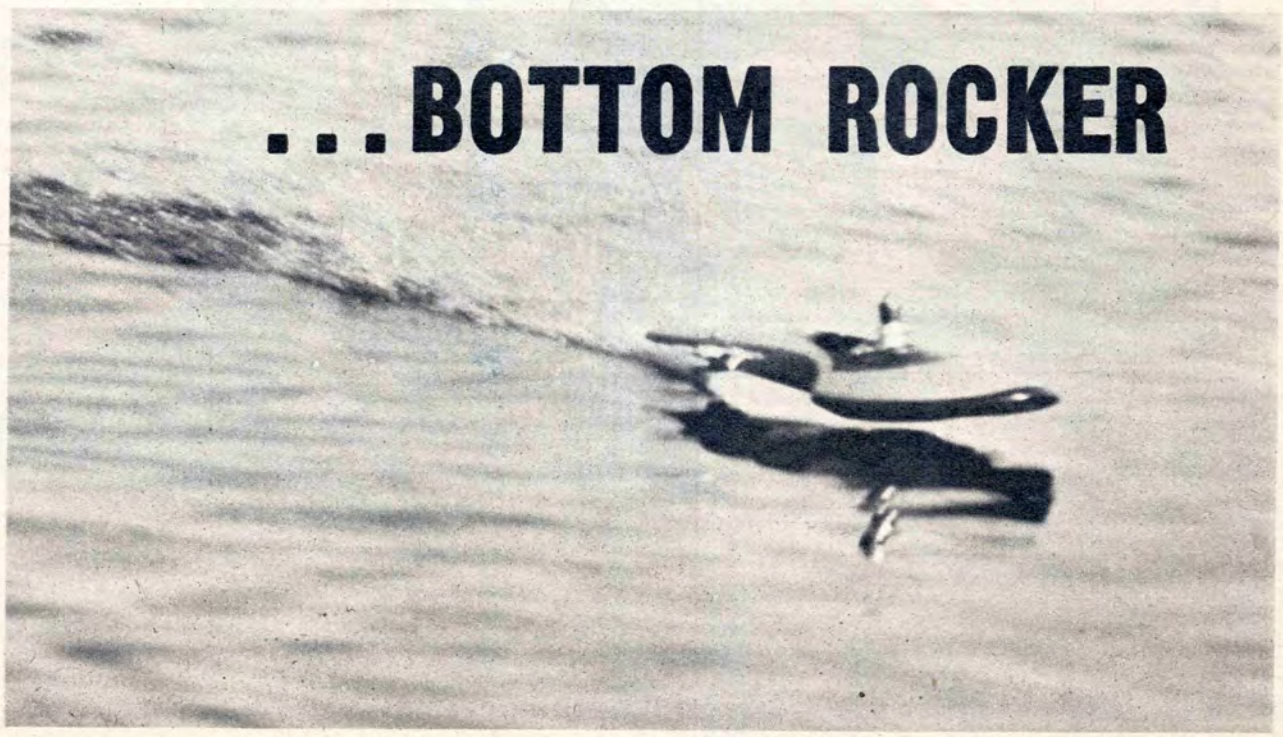
TOP KICKER . . . and

You pays your money and you takes your choice—inboard or outboard—but you can't go wrong with either of these winners

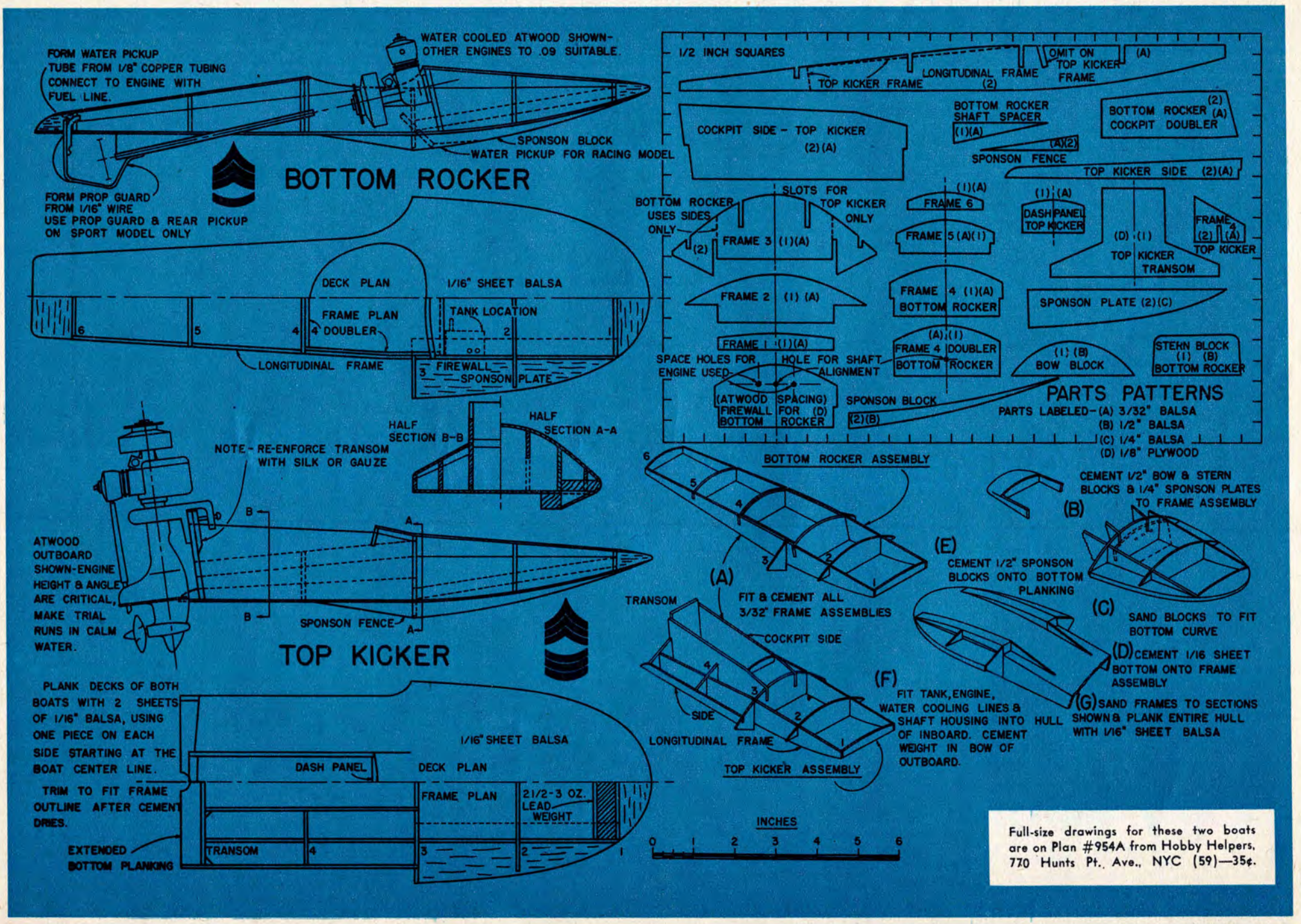
By ROD ESCHENBURG and EARL WITT

■ Model boat building and A/2 racing invaded the Northwest in a big way when the Slo-Mo brought the Gold Cup and Gold Cup Races to Seattle. Even closer to home for inspiration we have Jack Leek of the local Narrows Marina. He holds two world's records for Class A Stock Outboard Hydros, and with his team mates holds five of the six world's records for his Stock Outboards.

The first of the series of boats leading to the *Bottom Rocker* was *No-Moshun* built by Joe Burdett of Alcatraz, California (they aren't all inmates there), immediately after watching the first Seattle running of

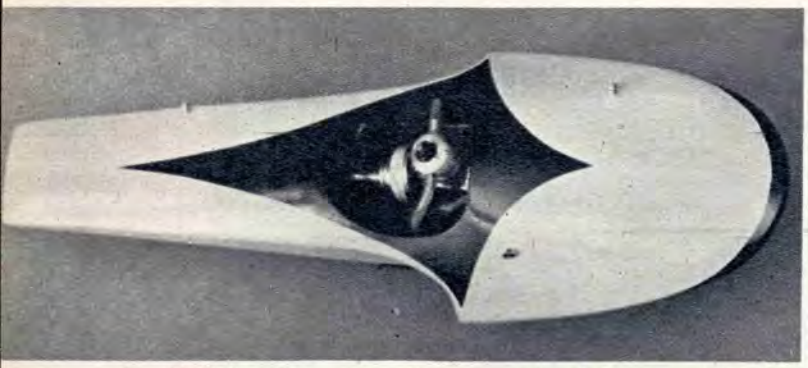


. . . BOTTOM ROCKER

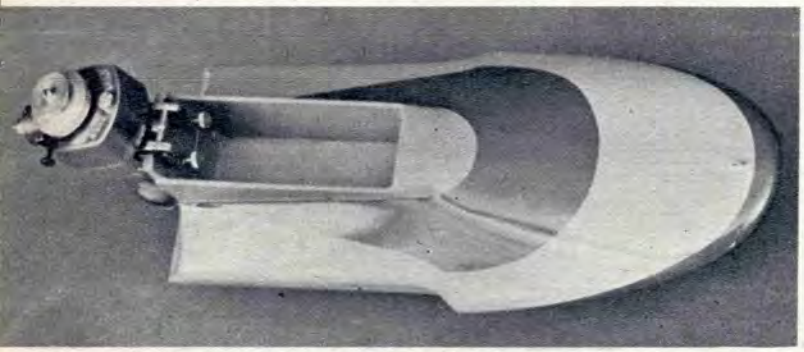

FORM WATER PICKUP TUBE FROM 1/8" COPPER TUBING CONNECT TO ENGINE WITH FUEL LINE.
WATER COOLED ATWOOD SHOWN- OTHER ENGINES TO .09 SUITABLE.
SPONSON BLOCK
WATER PICKUP FOR RACING MODEL
FORM PROP GUARD FROM 1/16" WIRE USE PROP GUARD & REAR PICKUP ON SPORT MODEL ONLY
BOTTOM ROCKER
DECK PLAN
1/16" SHEET BALSA
FRAME PLAN
TANK LOCATION
4 DOUBLER
LONGITUDINAL FRAME
FIREWALL
SPONSON PLATE
HALF SECTION B-B
HALF SECTION A-A
NOTE - RE-ENFORCE TRANSOM WITH SILK OR GAUZE
ATWOOD OUTBOARD SHOWN-ENGINE HEIGHT & ANGLE ARE CRITICAL, MAKE TRIAL RUNS IN CALM WATER.
SPONSON FENCE
TOP KICKER
PLANK DECKS OF BOTH BOATS WITH 2 SHEETS OF 1/16" BALSA, USING ONE PIECE ON EACH SIDE STARTING AT THE BOAT CENTER LINE.
TRIM TO FIT FRAME OUTLINE AFTER CEMENT DRIES.
EXTENDED BOTTOM PLANKING
1/16" SHEET BALSA
DASH PANEL
DECK PLAN
FRAME PLAN
21/2-3 OZ. LEAD WEIGHT
TRANSOM
1/2 INCH SQUARES
TOP KICKER FRAME
LONGITUDINAL FRAME (2)
OMIT ON TOP KICKER FRAME (A)
COCKPIT SIDE - TOP KICKER (2)(A)
BOTTOM ROCKER SHAFT SPACER (1)(A)
BOTTOM ROCKER (2) (A) COCKPIT DOUBLER
SPONSON FENCE (A)(2)
TOP KICKER SIDE (2)(A)
SLOTS FOR TOP KICKER ONLY
BOTTOM ROCKER USES SIDES ONLY
FRAME 3 (1)(A)
FRAME 6 (1)(A)
FRAME 5 (A)(1)
DASH PANEL TOP KICKER (1)(A)
FRAME 4 (2)(A) TOP KICKER
(D)(1) TOP KICKER TRANSOM
FRAME 2 (1)(A)
FRAME 4 (1)(A) BOTTOM ROCKER
SPONSON PLATE (2)(C)
FRAME 1 (1)(A)
FRAME 4 DOUBLER BOTTOM ROCKER (A)(1)
(1)(B) BOW BLOCK
STERN BLOCK (1)(B) BOTTOM ROCKER
SPACE HOLES FOR ENGINE USED
HOLE FOR SHAFT ALIGNMENT
(ATWOOD FIREWALL BOTTOM SPACING) FOR (D) ROCKER
SPONSON BLOCK (2)(B)
PARTS PATTERNS
PARTS LABELED - (A) 3/32" BALSA
(B) 1/2" BALSA
(C) 1/4" BALSA
(D) 1/8" PLYWOOD
BOTTOM ROCKER ASSEMBLY
(A) FIT & CEMENT ALL 3/32" FRAME ASSEMBLIES
TRANSOM
COCKPIT SIDE
SIDE
LONGITUDINAL FRAME
TOP KICKER ASSEMBLY
(B) CEMENT 1/2" BOW & STERN BLOCKS & 1/4" SPONSON PLATES TO FRAME ASSEMBLY
(C) SAND BLOCKS TO FIT BOTTOM CURVE
(D) CEMENT 1/16 SHEET BOTTOM ONTO FRAME ASSEMBLY
(E) CEMENT 1/2" SPONSON BLOCKS ONTO BOTTOM PLANKING
(F) FIT TANK, ENGINE, WATER COOLING LINES & SHAFT HOUSING INTO HULL OF INBOARD. CEMENT WEIGHT IN BOW OF OUTBOARD.
(G) SAND FRAMES TO SECTIONS SHOWN & PLANK ENTIRE HULL WITH 1/16" SHEET BALSA
INCHES
0 1 2 3 4 5 6

Full-size drawings for these two boats are on Plan #954A from Hobby Helpers, 770 Hunts Pt. Ave., NYC (59)—35¢.

TOP KICKER . . . BOTTOM ROCKER



Similarity of two racing boats is evident here. Top Kicker (the outboard engine powered version) was developed from inboard job.



Tremendous amount of research and actual running tests went into the development of these boats. Construction is simple, quick.

the Gold Cup Races. The *No-Moshun,* with only a K&B .035 and Scientific Squirt shaft and prop, more than doubled the speeds being made with Buckeye Jrs. and similar boats running at that time. Subsequent models and the *Bottom Rocker* itself were developed along the same lines, with a high sweep to the hull bottom and sponsons so they could be safely run free in open water without dunking as so many of the small flat or scale bottomed boats do.

The *Bottom Rocker,* though designed for a good sport model, was lengthened aft of the sponsons to give a lower shaft angle and eliminate the porpoising while racing under full power, and as a result it will run smoother and faster three-point on the water than any of the boats we have competed against. When we (accidentally) adjusted the boat to run with the prop "surfacing," the speed jumped over 20% and the boat walked away from all competition.

The *Top Kicker* is an adaption of *Bottom Rocker* parts in an Outboard Hydro to give us a boat to run with the new engines being introduced. The weight of the A/2 outboards made the adjustment of these small boats touchy, but when properly adjusted, it skims across the water in a very realistic manner. Now comes the low blow—although the boats literally fly over the water with spray scattering and appear to be making fabulous speeds, we have never clocked one on a line above *16 mph,* and seriously doubt if anyone else is getting speeds much in excess of this figure on a A/2 or small A engine. We have traced down published reports of speeds all the way from 30 to 70 mph, only to have the modeler supposedly claiming the speeds disown any such claim, admit he hadn't timed it, or said it looked as though it was going that fast. Ken Skilling of Oakland, California, was the only one who was able to produce any figures on speeds in excess of 16 mph.

If you are out to reach the A/2 speeds rumored or claimed, you are in for a long siege of experimenting, and table on page 47 with speeds at 85% prop efficiency will show you why. The boat can be made to ride stable on a line, U-control style, clear out of the water, as we have done in the *Bottom Rocker,* so your problem is propeller-engine combination. To reach 28 mph at this prop efficiency you would have to find, or more likely build a propeller with a 1½" pitch (for example) of a design which will maintain this efficiency and be small enough to allow your engine to turn the unlikely speed of 23,200 rpm.

If you used a 1⅜" pitch propeller (the highest true-pitch propellers that we have found on the market which our A/2's would turn, when not cavitating) the engine would have to turn in excess of 27,000 rpm. High-pitch propellers that would not have to turn so fast, lug the engine down, or stall it out completely. The best compromise we have found so far in standard equipment is a 1"/1" O&R propeller which ran slightly over 11 mph or 13,000 rpm, buried in the water, and by surfacing the prop (only half the propeller in the water) as is done in racing hydros, the rotating load on the prop was cut down, allowing the engine to turn up a calculated 19,000 rpm. In reaching these engine speeds an old, very loosely fitted Royal Spitfire, that would never have been considered for use in a model airplane, was used with a light flywheel.

To get the *Top Kicker* to "plane" properly, it was necessary to raise the engine until the cavitation plate just cleared the bottom of the boat; this puts the engine weight too high to get a good run on lines and the best clocked speeds have been 6 mph. Running free, however, estimated speeds of 10 mph have been obtained, which appears to be as good or better than other outboards observed. At the time of writing this article, the outboards have only been available a short time and adjustments other than propeller depths and angle have not been tried. In making these adjustments it has been found that every boat, even when of the same design, performed best at different settings, so again experimenting is going to be necessary.

The construction of these boats is quite simple, and as shown on the plans, most parts key together. In building either boat, cut out the 3/32" sheet balsa parts and ⅛" plywood engine mount or transom carefully. Assemble and cement these parts together as shown in step (A), using the frame plans to line up the parts. Cement bow blocks onto frame #1 and if you are building the *Bottom Rocker,* cement the stern block to frame #6. Sand the blocks to fit the bottom contours.

Cement the 1/16" sheet balsa bottom to the boat, with the grain running lengthwise, from the stern to frame #3, the flat section of the bottom. After this has dried, slightly dampen the sheeting, bend, and cement it to the forward part of the hull frame. Sand the bottom sheeting, then cement sponson blocks and sponson plate into place.

Using a large sanding block, level all side frames, blocks, and the sponson plates to match the cross frame contours, as shown in half sections A-A and B-B. A careful sanding job here will insure better planking fit on the deck.

At this point it is necessary to fit your engine hardware. If you are building the *Bottom Rocker,* insert a straight wire or your shaft through the alignment holes in the firewall and frame #4, then cut the bottom of the hull for the shaft housing on this line. Slip your shaft housing over the shaft and cement it securely in place with the shaft spacer. Reinforce

Dramatic action shot of the Eschenburg-Witt inboard engine racing boat as it performs on a line in an Oregon competition; really moving!

all joints where the shaft housing goes through the bottom and frames with silk and cement, or plastic wood. Any of your A/2 shaft, housing, and prop sets on the market may be used. We found the 25¢ Squirt Sets quite adequate. If you are using the water-cooled engine and are building for sport the water pick-up back of the prop is best, but for speed the sponson pick-up causes less drag. If you are building for sport, solder your prop guard to the housing; it will save wear and tear on the fittings, but slow you down as much as two miles per hour. Fit your engine to the firewall and fix the nuts or bolts securely in place on the firewall in a manner that will permit removal and reinstallation of the engine with the deck planking on. Cement your gas tank in place as shown.

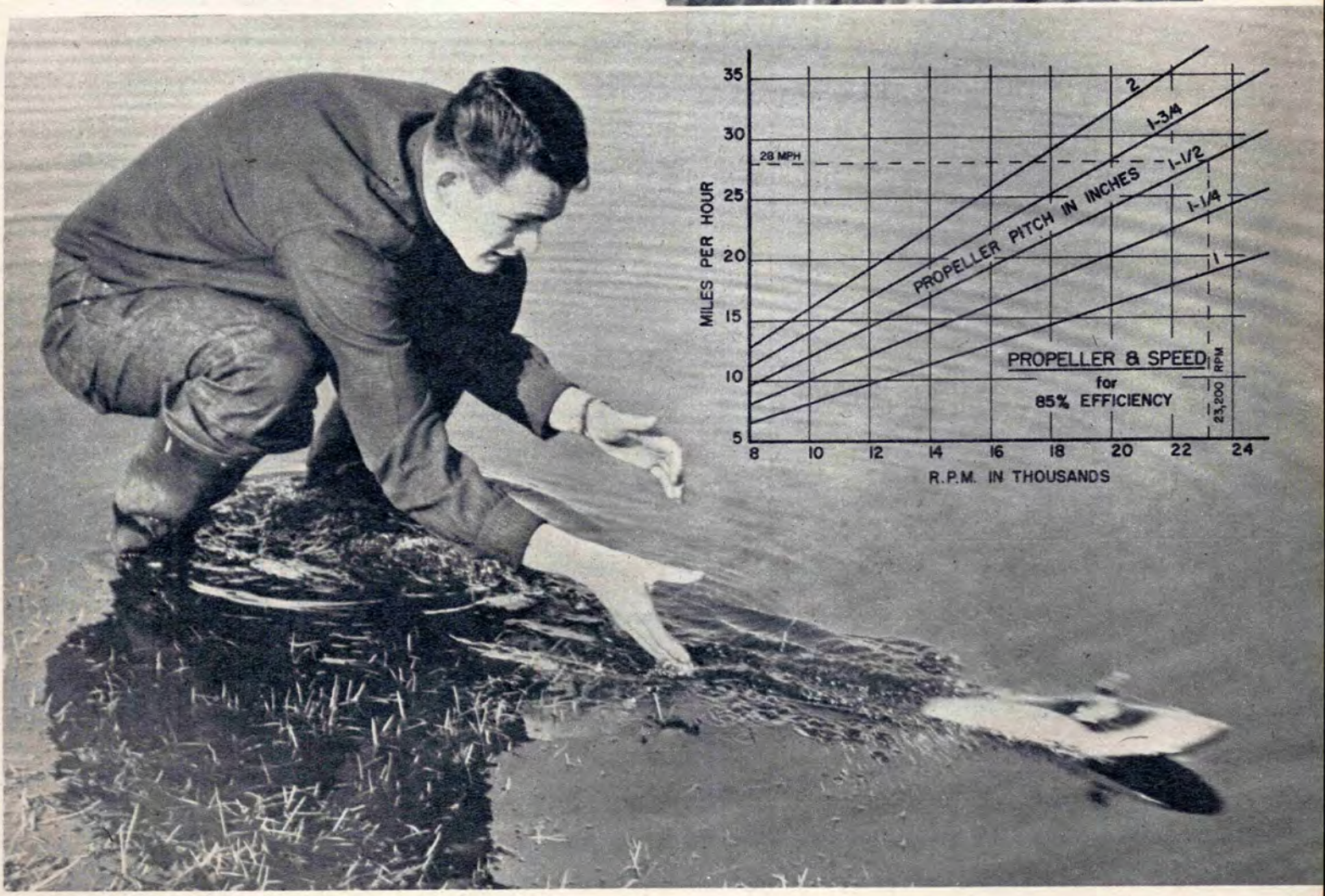
If you are building the *Top Kicker*, cement your transom reinforcing in and *cement a 2½ to 3 oz. lead weight in the bow.* The weight of the new outboards will flip the boat without the balancing weight.

After all the hardware has been installed, give the boat a good coat of dope inside and out.

Plank the hulls in two sections from the center line, using 1/16" sheet balsa, slightly dampened on the outside of the bend. Plank the bottom of the sponsons, then trim all the balsa sheeting to the hull sides or outlines shown on plan.

If you are going to race (*Continued on page* 61)

Co-designer Rod Eschenburg releases one of his racing beauties on a no-tether run. Lots of fun when you operate these "free flight"!



Adding Scale Detail to Your B-24 Bomber Flying Scale Model

Real-life "Liberator" (with bomb bay doors in opened position) was War Bond stimulus.

By FRANK LASHEK and CAL SMITH

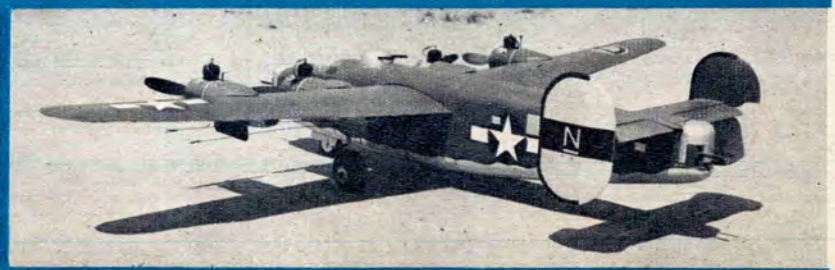
Part II presented here covers scale details and markings to complete model. Part I in the August issue dealt with construction.

■ With all woodwork complete the model is now ready for finishing. Depending upon amount of work the builder wishes to undertake, plastic enclosures should be tackled next. Turrets, bombardier's window, astrodome, cockpit canopy and all side windows are clear plastic. You may wish to make up wood patterns and mold each of these items or you may wish merely to simulate these enclosures with carved blocks painted aluminum color. All side windows can be made from flat sheet plastic inlaid flush with skin.

Many scale model builders prefer ignition engine power because a fuel-proof finish is not required. This really simplifies finishing such a large model as this B-24 since regular nitrate dopes can be used. If on the other hand you wish to use glow-plug engines, fuel-proof dopes should be used throughout. You might take a chance on fuel proofing nacelles only to make the job easier. Whatever power you use will of course determine the kind of dopes required. The instructions which follow here apply to either method of finishing.

Clear-dope all wood surfaces and sand smooth. Dope on lightweight Silkspan over entire model. Add two more coats of clear dope over paper and sand smooth. Now add bombardier's window, cockpit canopy and flat side windows. Turrets and astrodome can be added later. Mask off plastic areas and spray or brush several coats of Duco Auto primer over entire model. Use fuel-proof primer if this type finish is being applied. Wet-sand primer and apply more coats if needed to make smooth surface.

Use Testor's Olive Drab if finishing with regular dopes. Gray color is about halfway between Aircraft Gray and Battleship Gray. We found no fuel-proof olive drab available, so mix Aero-Gloss Medium Green with Orange to get olive drab. Start by adding small quantities of orange to green and compare with Testor's olive drab, only a little orange at a time until



color comes close. Aero-Gloss Cessna Gray should be darkened a little for proper color.

Apply final coats of colored finish to model on areas as follows: Entire lower surface of wing is gray, bottom of nacelles are gray to wavy line shown on plans. Belly of fuselage is gray up to wavy line shown. Lower surface of stabilizer and elevators are gray. Inboard side of fins and rudders are gray up to horizontal tail.

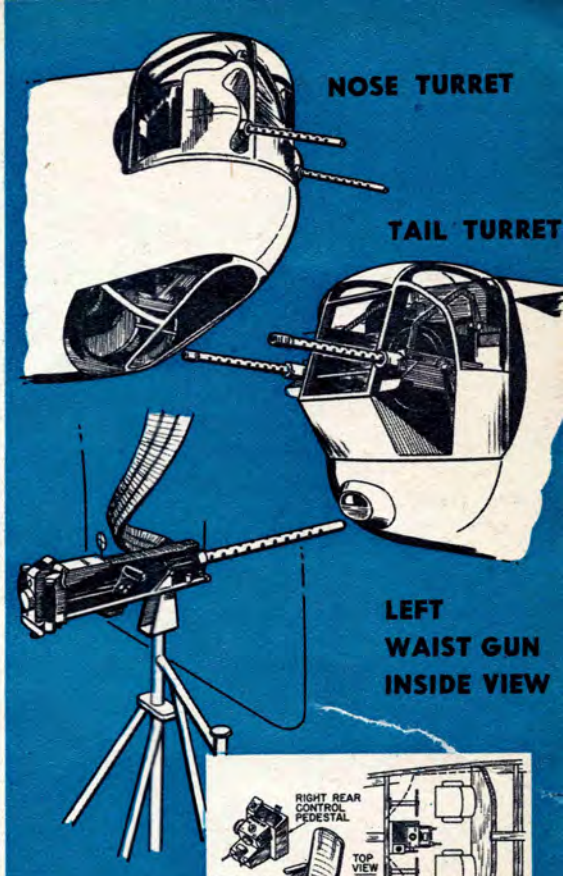
Entire top surface of model is olive drab including inboard side of vertical tails above horizontal tail. De-icer boots on leading edges of all flying surfaces are black as indicated on the plans.

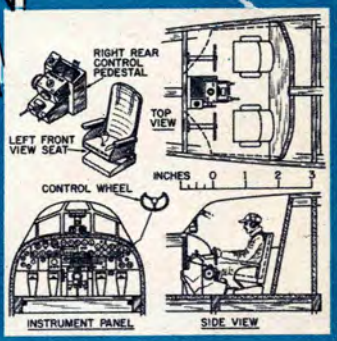
Since finish on real airplane was very dull, there is no need to rub down the model finish. *Scale judges please note!* Both regular and fuel-proof dopes do not have dull scale-like quality desired, but a smooth unpolished finish will approximate the type of finish used on the real airplane.

Some versions of B-24 were not painted but left natural aluminum color. You may prefer this paint job rather than camouflage olive drab and gray.

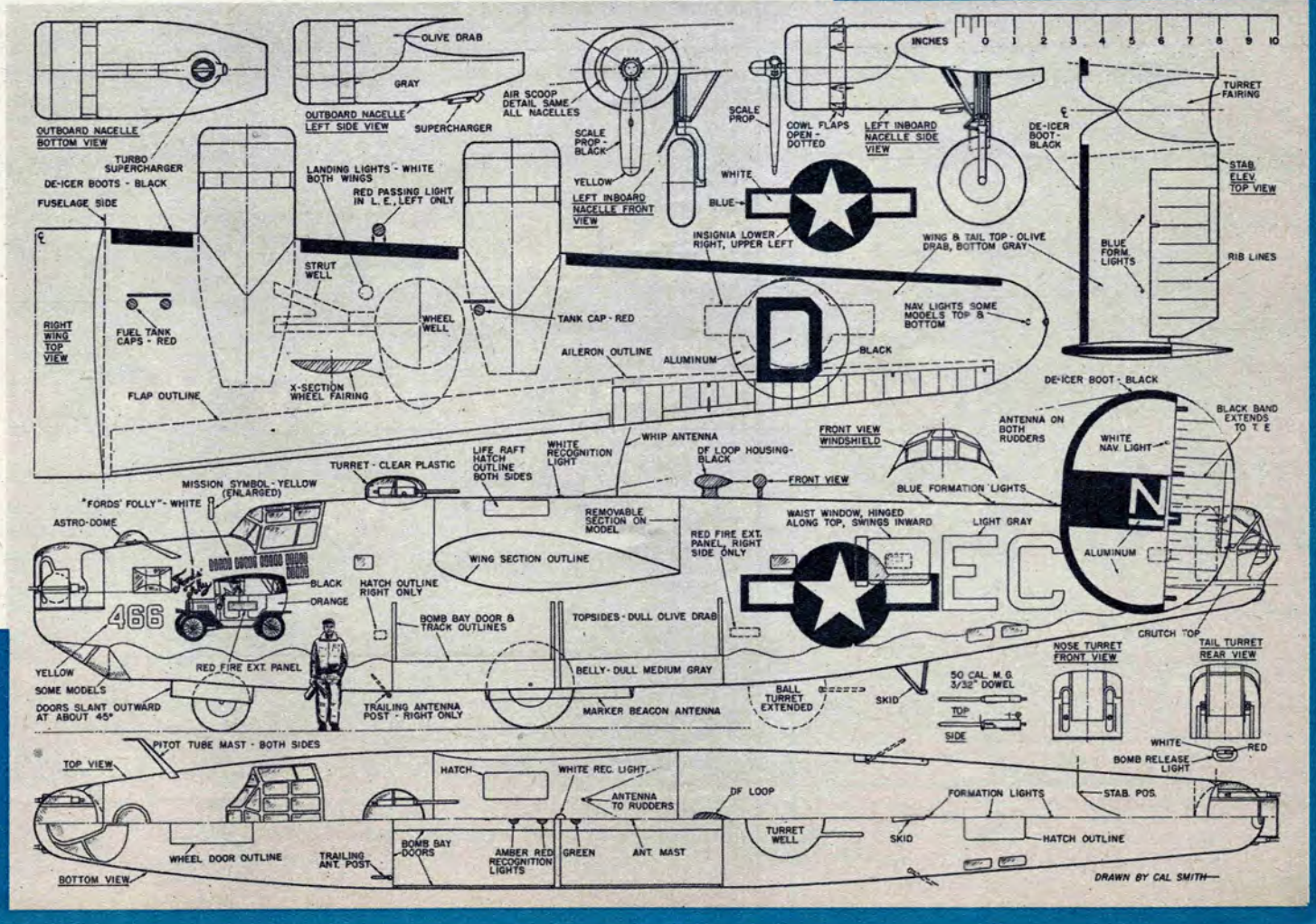
The distinctive markings and name used on the model are taken directly from one of the airplanes crewed by Sgt. Frank Lashek while he was serving with the 8th Air Force in England during World War II. The details are based on a large album of photos made by Lashek while on duty at the home field of the airplane in England.

Starting at the nose, these markings include the following: a 5/8" high *N* centered just below nose turret and above bombardier's window. *N* is silver with bar below as on fin. Numeral 466 in yellow carried on both sides of fuselage. "Ford's Folly" in white on both sides of fuselage. Cartoon "tin lizzy" carried on (*Continued on page* 71)





COCKPIT DETAILS FROM PHOTOS



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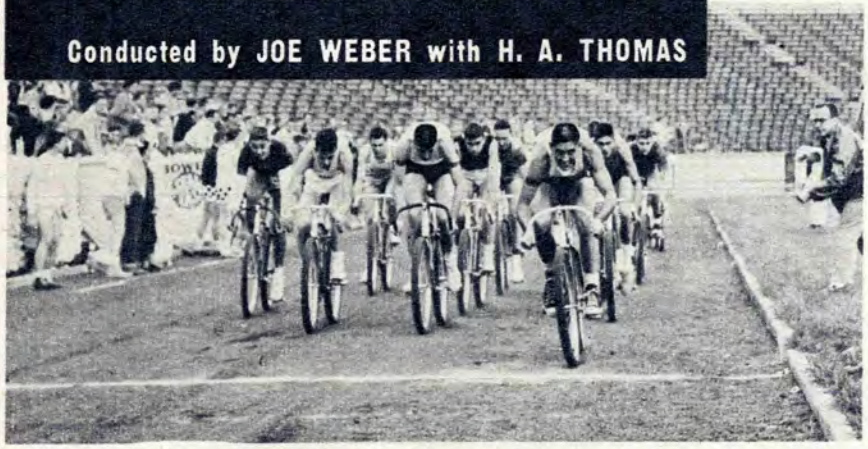
CYCLE CHATTER

Conducted by JOE WEBER with H. A. THOMAS



They're off! Start of the "Little 500" 50-mile bicycle race at University of Indiana.

What's new in the world of wheels? Here's the latest on bicycle design, records, special events and races

■ The new two-speed coaster brake by the Eclipse Machine Division of Bendix Aviation Corporation, Elmira, N. Y., is similar to the regular Bendix coaster brake, in that the braking parts of both units are interchangeable. The gear change of the "Multispeed" model is controlled by a finger-operated device on the handlebar; when the lever is pulled against the handlebar, the gear train is in high speed, and when the control lever is pushed away from the handlebar, the gear train (a set of planetary gears in the hub) is engaged in low speed, thereby giving a 32% reduction in effort necessary to pull hills and buck headwinds.

When in low gear, the 32% increase in mechanical advantage to brake application makes it easier to apply brakes than with a single-speed coaster brake.

Another advantage of this particular gear train is that in the event of control cable failure the assembly automatically goes into low gear, so that with the increased brake leverage the rider can safely ride until repairs are made.

Winning team represented Sigma Nu fraternity. Race consisted of 200 laps around quarter-mile track. Roadmaster bikes used.

Bicycle Brakes. Next to common sense and alertness, the most important thing in cycling is BRAKES.

Bicycle brakes are of the following types: the back-pedaling *coaster brake,* with which most people in the United States are familiar; the hand operated *rim brake,* of which there are two: the cable operated *caliper brake* and the rod operated *pull-up brake;* and the cable or rod-operated internal-expanding, dry-lining *hub brake.*

The back pedalling *coaster hub brake* is generally used on bicycles of domestic manufacture in the United States and on utility cycles in some European countries. It is a compact, rugged brake that can withstand abuse and requires little maintenance. The coaster brake's safety is dependent directly on proper chain adjustment, which can be neither so tight nor rusty as to cause chain breakage, or so loose as to let the chain jump off the sprockets. One other type of improper maintenance of coaster brakes is the practice of replacing the metal loop (that encircles the left chain stay and holds the brake torque arm) with hay wire, string, or what have you. If yours is worn invest in a new bolt, lockwasher, and strap.

The rod-operated *pull-up brake,* as is fitted to most foreign cycles of the roadster type, requires comparatively little maintenance provided one tightens up all the bolts. The *pull-up brake,* rugged and trouble free, for efficient operation depends on true-running wheels, which should be maintained on cycles of all types. The *pull-up brake* does not permit one to adjust the angle, and drop, of the handlebars as can be done with other types.

Caliper brakes of the side pull, center pull, or cantilever types, as usually found on the lightweight, or sports type bicycles, have recently been installed on balloon-tired bicycles of domestic manufacture. This type of brake is light in weight and efficient. Maintenance consists of keeping the central caliper fixing bolt tight, and the sheath fixing bolt and hand lever bolts tight. The cables use an occasional drop of oil between the cable and sheath; kinked or frayed cables should be replaced with new assemblies.

A note on the adjustment of *caliper* or *cantilever* brakes: a dime should just be held, without dropping, between the rim and brake pad, with the opposite brake pad snug against the rim. Brake pads should be of the proper type and composition, depending on their use for steel, stainless steel, or aluminum alloy rim. Be sure to specify rim material when buying replacement blocks. Do not oil blocks of the rim type brakes.

The last category of bicycle brakes is the hand-operated, internal-expanding, dry-lining type; this brake is usually found on tandem bicycles, cycle trucks, and heavy service bicycles. It resembles a smaller version of the type used on motorcycles and is either cable or rod operated or a combination of both. It has brake shoes and lining like those on an automobile.

Winners: AMF Roadmaster "Flying Falcon" Pic Contest

Robert Witkoff won with picture of acceleration test between bike and car—bike won. Bob's from Kew Garden Hills, N. Y.

"Wheeled Scout" by Steve Donaldson, Monahans, Texas, won for him an AMF Roadmaster "Flying Falcon." (That's map.)

Nebraska Girl Takes Top Prize in Bobby Benson B-Bar-B Ranch Bunkhouse Model Building Contest

■ No one was more surprised than the judges, who learned after reviewing with great interest and care all the entries in "Hobbies" B-B Bunkhouse model building contest that the entry they selected for first prize had been submitted by a girl, and a 12-year-old one at that!

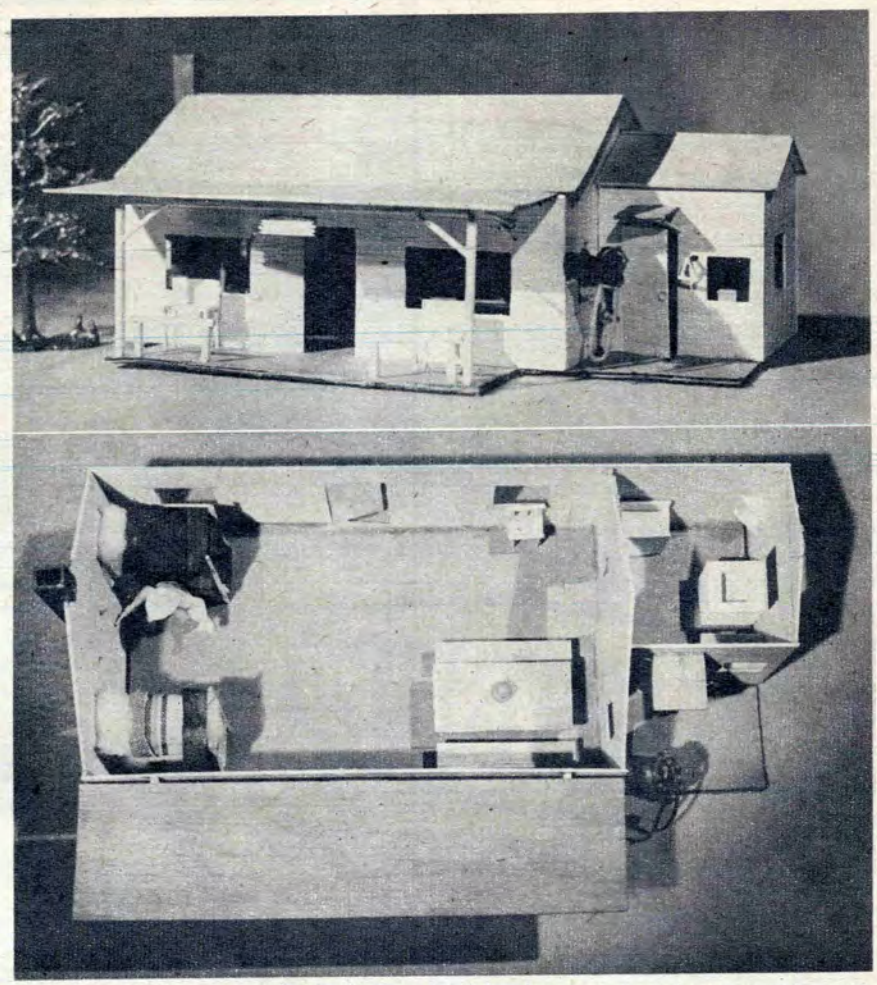
"I had lots of fun making the bunkhouse," wrote Nancy Nibler of Lincoln, Nebr. Congratulations to you, Nancy!

Tennessee came in second through the entry of Robert E. Gilbert of Jonesboro. Mr. Gilbert's model had a very authentic appearance although the subject was a bit out of focus at the far end of the roof line.

"Models of buildings—houses and towns particularly—has been a hobby of mine for several years," reported D. A. Nisbet of St. James, Manitoba, Canada. Mr. Nisbet was awarded third place in the contest.

The judges were impressed by the fine entries and extend their congratulations to all who built the model bunkhouse and entered photos in the contest. Several indicated their bunkhouses would be added to existing model railroad layouts. For additional model projects of this nature see forthcoming issues and listen to the B-B radio program.

Bobby Benson and his "Songs of the B-Bar-B" program is broadcast coast-to-coast on the Mutual Broadcasting System. Consult your local listings for time and station. Follow the stories and songs of Bobby, foreman Tex and the fabulous Windy Wales; B-Bar-B ranch hands are also hobby-model fans.



First prize—$100—was awarded to this entry by Nebraskan contestant. As announced, entries were judged on the basis of their excellence of photography as well as model interest. This was the only submission that included interior details, thus giving entrant points for ingenuity.

Second prize—$50—went to a Tennesseean for this weathered-looking replica of bunkhouse. Many entries, apparently nicely constructed models, suffered from poor photography.

Canadian contestant took 3rd place and one of the famous-make Eveready Battery-powered AM band personal radios. Materials used: Western cedar and putty (for adobe wall finish).

AMERICAN BOY $1.00
SPAN: 18" For .020 to .074 Eng.
Our U-Control trainer . . . the biggest dollar's worth of model airplane in the world. It's a sleek profile job, 100% complete—100% prefabbed.

MONOCOUPE 90A $1.50
SPAN: 18" For .035 to .074 Eng.
Scale model of America's favorite private plane. Prefabbed kit includes carved balsa fuselage, formed metal cowling, U-Control, etc.

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. . . with these action-packed Scientific model thrillers.

NORTH AMERICAN F-82 TWIN MUSTANG

WINGSPAN: 18" FOR .035 TO .074 ENGINES

Just released . . . and already one of our record smashing sellers! It's our fabulous F-82 . . . first time as a control-line, fly-it-yourself scale model. Powers with ONE or TWO gas engines. Many hours of test flying prove this! The model flies like a "dream" . . . and it's a downright cinch to assemble. The super-prefabbed kit includes: Two (2) carved balsa fuselages, Airfoil shaped balsa wing, Two (2) formed plastic canopies, Two (2) pilots, Two (2) metal cowlings, etc. etc. _____ **2.95**

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LITTLE STINKER

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Betty Skelton's championship stunt flyer . . . never before at this low, low price. It's highly colorful — a terrific performer. Prefabbed kit contains carved balsa fuselage, colorful decals, etc. _____ **2.50**

LITTLE BUCKEYE

Our brand-new speedboat sensation! This sleek beauty powers with any "1/2 A" engine, electric motor or Jetex. Prefabbed kit includes 12" carved balsa hull, brass metal fittings, etc. _____ **1.95**

FREE! Scientific Catalog . . . Contains all our exciting action models: Airplanes, Speedboats, Race Cars, etc.

NO. AMER. AT6 $1.95
SPAN: 18" For .035 to .074 Eng.
Our extremely popular scale model of the AT6 Trainer. Prefabbed kit features carved balsa fuselage, etc.

BOEING P-26A $2.95
SPAN: 18" For .020 to .074 Eng.
An excellent control-line flyer. Prefabricated kit is complete in every detail . . . all parts finished.

RIVIERA $3.50
For "1/2 A" Eng., Electric Motors
Authentic Chris-Craft replica with a 12" carved balsa hull and brass metal fittings. All parts finished. Completely prefabbed model.

SEA HAWK $2.50
"1/2 A" Eng., CO_2, or Elec. Motors
Features our exclusive aeronautical fin and rudder design. Prefabbed model has a 12" carved balsa hull, brass metal fittings, etc.

BUCKEYE JR. $3.95
LENGTH: 14" For .020 to .074 Eng.
Full speed ahead for thrills with this "beaut" of a speedboat. Prefabbed model is 100% complete—carved balsa hull, brass fittings.

CURTISS HAWK $2.95
SPAN: 17 1/2" For .020 to .074 Eng.
Deluxe U-Control model of the U.S. Army's famous "Hawk" fighter. 100% complete . . . 100% prefabbed. Contains carved balsa fuselage, etc., etc.

LITTLE MERCURY $1.50
SPAN: 18" For .039 to .074 Eng.
Carved fuselage model — at this sensational low price. It's completely prefabbed . . . easy to assemble, easy to fly. Jim Walker's U-Control.

BOEING F4B-4 $2.95
SPAN: 17 1/2" For .020 to .074 Eng.
Deluxe U-Control model. 100% complete—100% prefabbed . . . with carved balsa fuselage, metal cowl, rubber wheels, pilot, etc.

WACO CABIN $1.50
For .020 to .049 Engines
Imagine! This carved fuselage biplane "beauty" for only $1.50. It's semi-scale. Features Jim Walker's U-Control, all prefabricated parts.

LITTLE MUSTANG $1.95
SPAN: 18" For .020 to .074 Engines
Famous escort fighter model. Completely prefabbed. Features carved balsa fuselage, formed balsa wing, etc., etc.

LITTLE DEVIL $1.50
SPAN: 18" For .020 to .074 Eng.
An economically priced U-Control model. Easy to build and fun to fly. Prefabbed parts include: carved balsa fuselage & wing, etc.

BRAND NEW!

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JIM WALKER'S U-CONTROL
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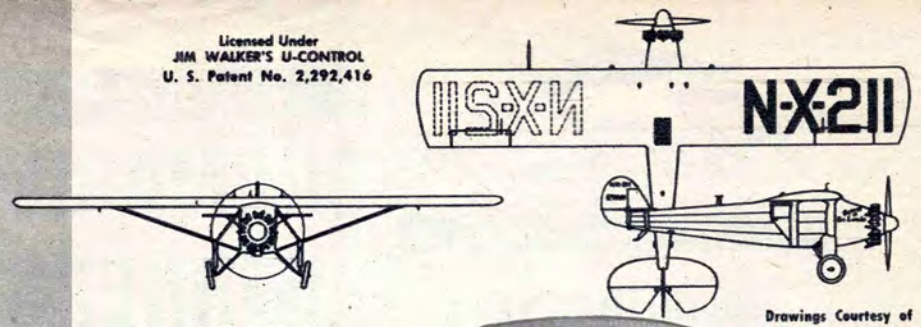


Drawings Courtesy of
AIR TRAILS
Hobbies for Young Men

A U-CONTROL
Fly-it-Yourself
AUTHENTIC SCALE MODEL

NOW YOU CAN FLY IT! The most famous airplane in the history of aviation . . . the one and only SPIRIT OF ST. LOUIS. Honestly, words just can't do justice to this thrilling model replica. We've taken great pains (and much pride) to bring you exactly "your kind of model" of this historical monoplane. In flight, it's a downright "dream" . . . responding smoothly, easily to your controls. In assembly . . . you assemble the few ready-formed parts (no tedious framework assembly) in "nothing flat." Add your engine, and you're all set to fly your very own "SPIRIT OF ST. LOUIS." See the kit at your dealers . . . soon. Open the box and examine the "complete to the last detail" contents. We're sure you'll agree that it's a tremendous bargain.

ONLY $4.95 complete less engine

DEALERS!
We have a beautiful "Spirit of St. Louis" window streamer ready for you. It's highly colorful . . . free for the asking to DEALERS ONLY. Ask your jobber or write direct.

SEE IT AT YOUR DEALERS!

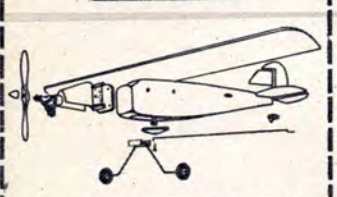
SCIENTIFIC

SPIRIT OF ST. LOUIS

26" WINGSPAN

FOR A or B ENGINES ENG. DISP. .099 to .23

THIS



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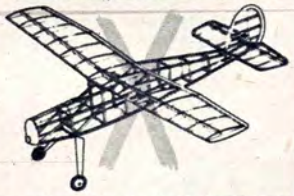

THIS
One Piece Airfoiled Balsa Wing, Carved Balsa Fuselage, Formed Balsa Tail Assembly, Metal Cowl, Formed Landing Gear, Rubber Wheels with Bushings, Formed Metal Motor Mount, Plastic Spinner, Decals, All Hardware . . . etc., etc. All parts ready formed . . . completely prefabbed for super-easy assembly.

NOT this
Old-fashioned flimsy construction. Tedious "stick framework" assembly requiring days and days of messy cutting, gluing, fitting, covering, etc., etc.

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THE Fleet Line
Made in U.S.A.—Distributed by K & O

Beautiful New
• FULLY BUILT • BATTERY POWERED BOATS

AUTHENTIC WORKING MODELS

READY TO GO

Each boat, individually boxed, features mahogany stained, grooved wood deck, bright nickel-plated fittings, switch-controlled headlight, powerful electric motor, heavily nickeled brass drive assembly, cadmium-plated battery clips and hardware, water-proof, warp-proof hull painted white, red bottom, with non-peel marine paint. Factory tested, guaranteed.

12½" SEA BABE • $4.95

Speed Boat—4⅝" wide

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Speed Boat—5½" wide

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Deluxe Cabin Cruiser—5½" wide

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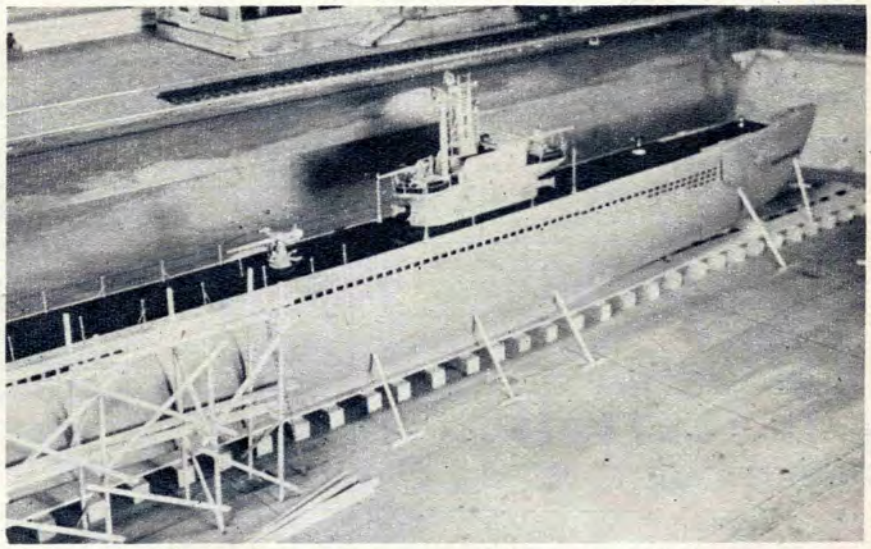
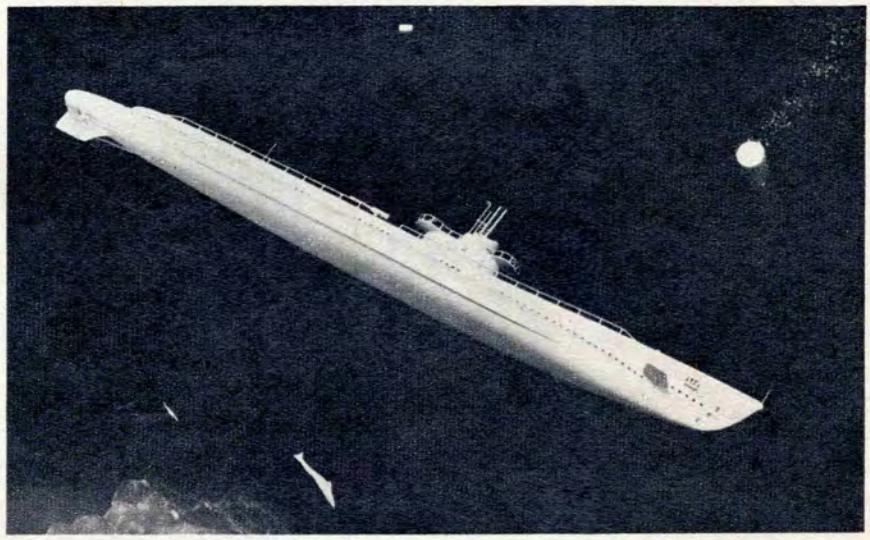
REALISM-IN-MODELS PHOTO CONTEST

SUBMARINE WINNERS

First to close in Hobbies' "most realistic model" photo competition was the sub section. Next came the model vehicles, then model planes and finally the model boats—this one closes on August 31, 1954. Send in your "Realism-in-Model-Boats Photo Contest" entry now!



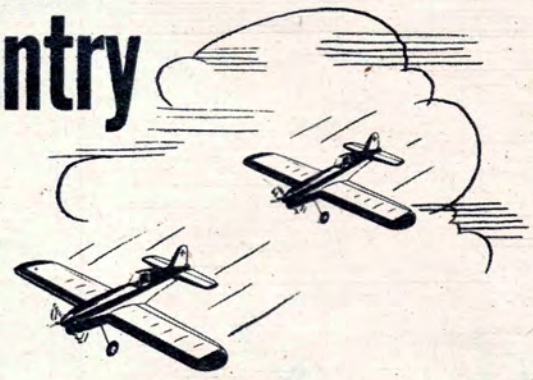
First place and $50 go to Godfrey Thomas of Los Angeles for this drydock shot of a "Gato" class sub built to scale of ⅛th inch to the foot. Hull and tower are pine.



Second award of $25 to William Alexander, Grand Rapids, Mich., for "Guardfish Under Attack." The background created by black velvet; air bubbles, salt; explosion, ink blot.

Harold Feinstein, Brooklyn, submitted best of many entries of sub running along surface for third place ($10). Various means of creating water highlights used; soap flakes popular.

now available for the first time in this country



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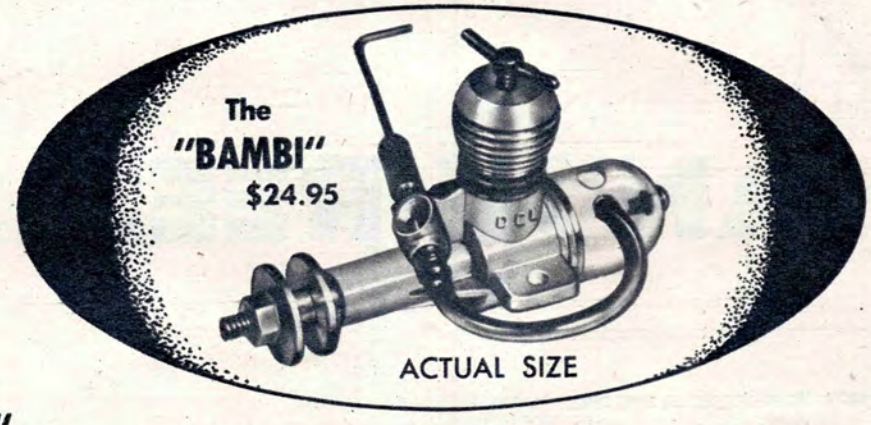
UNQUESTIONABLY THE WORLD'S FINEST . . .

The "DART" $12.95

.5 c.c. .03 cu. in.
1½ oz. wt. Class ½A



The "SPITFIRE" $12.95

1.0 c.c. .06 cu. in.
2¾ oz. wt. Class A

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1.5 c.c. .09 cu. in.
3.0 oz. wt. Class A

NOW AVAILABLE FOR THE FIRST TIME IN *ANY* COUNTRY
THE WORLD'S SMALLEST PISTON ENGINE
A DISTINGUISHED ADDITION TO THE ALLBON FAMILY . . .

The "BAMBI"

Here is a masterpiece of "engine-makers" art . . . the world's smallest piston engine. Completely reliable, efficient and durable, the Bambi offers performance comparable to larger engines, yet provides amazingly small size and light weight. An entirely new field of model aircraft design is opened with this extraordinary Allbon achievement.

SPECIFICATIONS

.15 c.c. .009 cu. in. • 7/10 oz. wt. Class ½A

ENGINEERED TO LAST A MODELLING LIFETIME

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CONTROL LINE FLYING *at it's best*

HANDY·REEL

WITH SEPARABLE HANDLE FOR FLIGHT SENSITIVITY AND CONTROL

HANDY REEL ***including handle*** — Handy Reel conveniently stores the lines . . . connected to the handle and ready for thrilling flight! Because of its large diameter there is no possibility of kinking the lines. Reeling in and out is smooth and flawless! Made of durable Styrene plastic, with metal reinforcements. **$2.95**

HANDLE ***without reel*** — You'll get the full "feel" of your plane and maneuver with thrilling new sensitivity and control with the Handy Reel Handle! Delicate control line adjustment can be made at the forward edge of the handle. The handle grip is shaped to the contour of the hand to give you the full comfort and delicate awareness of every motion of your plane. Ruggedly constructed of high impact Styrene, with metal reinforcement at critical points, Handy Reel Handle withstands tremendous pulls and punishment. **.75**

HANDY THONG — Safety accessory . . . adjustable; locks handle to wrist, avoids loss of ship or injury to spectators: Required by AMA for contest flying. **.75**

Ask your dealer for Handy Products; if not in stock please give name of dealer and mail your check or money order to:

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You Ask . . . we answer

Stanzel Mono-Line . . . Where could I obtain a Stanzel "Mono-Line" control unit and how much would it cost?

Tom Tubbs, Fort Clayton, Canal Zone, Panama

• Contact Victor Stanzel & Co., Box 171, Schulenburg, Texas. Control unit is $1.50.

Fw190 . . . Could you please tell me if the tail wheel of the Focke-Wulf Fw 190 is retractable?

Also could you please send me drawings or diagrams of the interior of the cockpit of the Fw 190?

Charles W. Chapoton, Jr., Aiken, S. C.

• Sorry, we have no drawings or diagrams of cockpit interior of Fw 190 cockpit. The tail wheel of the airplane was retractable.

Japanese Jet . . . In your issue of Air Progress for 1953/54, on page 74 in the section about Japanese Military Aircraft, you have a picture of a Japanese airplane on the bottom (J5N1 Tenrai). In the background there is another airplane with a jet engine or something mounted on its wing. Could you tell me what it is?

Paul Gresky, Oak Ridge, Tenn.

• The airplane in the background of the J5N1 picture is a Kikka, an experimental Japanese jet aircraft.

How Many Engines? . . . Please tell me whether the de Havilland "110" of England is a fighter or bomber, if it carries one or two engines. This ship is on page 20 of the 53/54 edition of Air Progress.

B. Dabney, Corona, N. Y.

• The de Havilland 110 is an all-weather fighter. It is powered by two Rolls-Royce Avon jet engines of approximately 7500 lbs. of thrust each.

Boeing XB-15 . . . I would like to know the wingspan of the Boeing XB-15 (U.S.-'37) because only one was built. I found the aircraft on page 69 of Air Progress, and would like to know more about it.

Don LeNoir, Marlin, Tex.

• The Boeing XB-15 had a wingspan of 149 ft. The fuselage length was 87'11". It weighed around 71,000 lbs., had four engines of 1000 hp each.

Surplus AF Planes . . . Could you inform me as to who to write to to obtain information on purchasing old fighter planes such as the P-51, P-38, P-63 when they are retired from service? I would like to know what government agency do I write to. I should also like to know what the fuel consumption is in miles per gallons of gasoline used by the B-25, AT-6, BT-13, and the P-38, P-63 and P-51. What is the cruising speed of the P-51, P-63, AT-6 and BT-13, and also the P-38?

Claudius C. Vaughan, Jr., Milwaukee, Wis.

• Sorry, no surplus military airplanes are available for sale now. Fuel consumption of an aircraft engine can be determined by multiplying its fuel consumption lbs. per horsepower hour, by total horsepower of the engine. Thus if it is .50 lbs. per hp-hour and the total hp is 1000 the consumption in lbs. will be 500. Since gasoline weighs 6 lbs. per gallon, consumption in gallons per hour will be 500 divided by 6 or approximately 83 gallons per hour drawing 1000 hp from the engine. Actually, though, airplanes cruise at approximately 60%, so the fuel consumption will be roughly speaking 60% or 50 gallons per hour. Cruising speed of an AT-6 is around 160 mph, P-51 around 300 mph, P-63 about 250 mph, BT-13, 135 and P-38 about 250 mph.

Experimental Jobs . . . In a recent issue you mention that the Air Force plane designated XP-57 was made by Tucker. I would like to know if this aircraft ever got off the drawing board stage, *i.e.*, were any built? Also, what plane received the designation XP-78 or XF-78?

Robert F. Dorr, Washington, D. C.

• So far as we know the XP-57 was never built.

The XP-78 was the first P-51 Mustang to be powered by the Packard-built Rolls-Royce engine; production versions were redesignated P-51B. Originally, the early P-51s were powered by Allison engines.

Under Control

(*Continued from page* 17)

Commercial Station License costing $10 per year; applicants must be over 16 and British subjects. Licensed hams can work R/C by simply getting an endorsement on their regular ham tickets.)

Furthermore, any transmitters that are to be used for R/C must be certified by a professional engineer, who checks such factors as output frequency, tolerance under operating conditions, harmonic and other spurious radiations, type of modulation and power output. The authorities may request a demonstration of measurements, if they wish. This seems completely to rule out any home-built apparatus, whether it is original, or made from magazine articles or even kits. So—maybe we are not so bad off at that . . . but we sure *are* crowded!

A few notes on R/C in Minnesota from Red Costlow (1709 Lagoon, Minneapolis); he reports lots of flying, new planes, new control equipment. Red tells of time Lt. Bob Allyn was flying his Live Wire Kitten—it sagged down right after launching and disappeared behind a row of cars; Bob was up on tip-toes trying to see if it had hit and ended flight when—whoosh!—it came up from behind and hit him square in the seat of the pants! This flyer, incidentally, was voted most outstanding club flyer (of the Minneapolis Hot Watts) last year and received a slick trophy for his R/C achievements. Don Block and Bob Oppegard are building twin speed ships with Fox 19's—Goodyear racer style. Red says the boys in Mankato, Minn, have been stirred up on R/C by Jim Anderson, while Jay Hyistendahl is getting things going in Worthington.

Technical Dept. Ed St. John (122 Queens Ave., Elmhurst, N. Y.) suggests that excellent power supplies for R/C transmitters may be had from old car radios that are sold at low prices at auto junk yards. They work on 6V., of course, and a plug to go into the cigar lighter socket makes them a cinch to set up.

From Jack Lemon (26939 Greenfield, Royal Oak, Mich.) comes a note that may help some of those who have had trouble with the Mini-Mac. Jack could not get the no-signal current of his to rise over .5 ma., unless he hung at least 6 feet of antenna on it. However, the difficulty was cured by running a short piece of wire from the grid end of the slug-tuned coil to the metal base of the coil form. Jack says this made several balky receivers work fine.

We have stumbled upon a really startling little electric motor that certainly has uses in the R/C field. Said motor was extracted from a German toy auto, a Porsche scale model; car could run for hours on a small battery—this called for dissection! It was found that the motor would run without load on 4½ V. at *only 12 ma!* Yet when loaded to draw about 50-75 ma., it has very respectable torque. It's a most unusual design; size is about 2¼"L.x1" dia., and the motor weighs 2.6 oz. Has ball bearings, removable carbon-tipped brushes, and appears to have no field—either wound or permanent magnet! There must be a field of some sort, of course, or the darn thing wouldn't run, but we haven't wanted to ruin our sample to find out what makes it tick.

At any rate, the armature spins freely and with practically no drag, one reason, no doubt, for the extremely low current drain. The entire auto, with battery, sells for $5 at F.A.O. Schwartz (754 5th Ave., New York, N. Y.); it is a very neat all-metal job about 10" long, with workable steering gear, key switch on the dash, and a gear change system affording two forwards, neutral and reverse. If you get one, don't let the kids see it first, or they'll never let you tear it apart! We'll inform you how it works out in various R/C applications.

Lt. Col. Roscoe B. Woodruff, Jr. (Hq. FEAF, Box 187, APO 925, c/o Postmaster, San Francisco) has had some trouble with receiver damage during hard landings, and asks what suspension he should use to minimize such damage. He notes that the tube of his Super Aerotrol receiver pops out of the flea clips, relay contacts get bent, etc. We suggest a pad of sponge rubber be mounted ahead of the receiver (make it at least 1" thick, preferably more) and thinner pieces be placed on the fuselage sides. Some flyers have found replacing suspension rubber bands with loops of the thinnest plastic fuel tubing very successful. Tubing absorbs vibration quite well, but does not have enough elasticity to allow receiver to jump around so wildly on hard landings. Col. Woodruff wonders if an ECC 951 receiver will work with his Super Aerotrol transmitter; it should work fine.

We learn that the Raytheon 3B4 tube used in the Mac-50 transmitter (last issue) cannot be had, as this concern has dropped tube from its line. However, CBS-Hytron will make the same tube indefinitely, so supply is assured.

Harold deBolt (Williamsville, N. Y.) had some difficulty in getting a reed receiver going properly, after it had been idle for some months. Trouble was traced to reed contacts, and these were cleaned carefully with carbon tet. and with dope thinner, but the set still did not work right. Careful check showed contacts coated with a gummy transparent deposit that might have been hardened castor oil fumes; anyhow, a *light* application of #500 sandpaper cleaned the stuff off, whereupon perfect operation was had.

Robert Grabowski (Route 9, Box 1014M, Houston, Tex.) suggests that experimenters who want more data on tuned reeds obtain Bulletin 33 from James G. Biddle Co. (1316 Arch St. Phila. 7, Pa.). It describes their Frahm Resonant Reed relays, has lots of general info on reeds, graphs of response and impedance characteristics, shows how to calculate reed filters, etc. It's free. Bob would like to hear from anyone interested in reeds; can supply reeds, if needed.

Commercial News. At long last we can report real progress on an R/C book that has been written by yours truly. It's a slow process, but if things go right, this volume, entitled "Radio-Control Handbook," will be on sale by the time you read this issue. To be published by Gernsback Publications (25 W. Broadway, N. Y. 7, N. Y.) the book will sell for about $2. Profusely illustrated, it is intended for the beginner in R/C as well as the more advanced builder; it contains descriptions of transmitters and receivers from the simplest up to multitube jobs, test equipment, full details of motor control systems, all sorts of escapements, proportional control equipment, etc. Plans and instructions are given for building much of the equipment described. Book may be had direct from publishers, at most hobby and radio supply stores, from R/C supply concerns, from Hobby Helpers and many others. Hope you like it.

New relay designed expressly for R/C is available from American Telasco

HANDY BOY

PRESSURE FILLS ALL TANKS AND FILTERS AS YOU FUEL!

The huge response has enabled larger production and a . . . **NEW LOW PRICE** **$1**

Squeeze . . . and it fuels • Gas is always clean . . . Supply always visible • Holds 4 oz. • Fits your pocket!

Unbreakable, fuel-proof, compact squeeze-type plastic container and metal-tipped filling head fuels all tanks.

Special built-in strainer filters out dirt and impurities — assures entry of clean gas into tank.

Pressure-cap for sealing Handy Boy against evaporation loss or spillage; permanently attached.

Ask your dealer for Handy Products; if not in stock please give name of dealer and mail your check or money order to:

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Sensational *Speed* in the Water!

SEA DART

Plastic 3-Point Outboard Hydroplane

A Speed Demon in Action! Designed especially for the new gas outboard engines!*

Actual photograph of model built from kit.

You'll get the thrill of your life when you send the SEA DART racing through the water!

Designed along latest hydrodynamic principles to insure top performance and stability, this 16" all-plastic model includes such special features as—Completely finished hull (including bridle mount) of high-impact Styron plastic, designed to thrive on the most rugged use! Die-cut Styron engine mount and cockpit fairing parts! Authentic racing-type decals! Can be assembled in minutes . . . operated either tethered or free! Your dealer has the SEA DART—ask him for it today!

$3.95

Length 16"
Kit B-12 Beam 6½"

**Also for electric outboard motors*

SEE THESE OTHER STERLING MODELS

PLANES	Kit	Price
Monocoupe	C-1	$4.95
Howard Pete	C-2	5.95
Mr. Mulligan	C-3	4.95
Waco	C-4	5.95
Polish Fighter	C-5	5.95
SE 5	C-6	5.95
Ryan S-T	C-7	5.95
Fokker D-VII	C-8	5.95
Corsair F4U-1	C-9	5.95
Ring Master	S-1	2.95
F-51 Mustang	S-2	2.95
Yak-9	S-3	2.95
Space Master, Jr.	S-4	2.25
R. C. Piper Tri-Pacer	FS-1	10.95

POWER BOATS	Kit	Price
Richardson 27' Cruiser	B-1	$5.95
Higgins 17' Speedster	B-2	4.95
Chris-Craft 47' Buccaneer	B-3	7.95
Century Resorter '20'	B-4	3.25
Century Sea Maid '20'	B-5	2.95
Chris-Craft 32' Cruiser	B-6M	9.95
Deluxe 34-pc. scale marine fitting set for Kit B-6M	B-6F	3.50
Chris-Craft 50' Catalina	B-7M	11.95
Deluxe 66-pc. scale marine fitting set for Kit B-7M	B-7F	4.95
Century Sea Maid '20'	B-8M	7.95
Deluxe 35-pc. scale marine fitting set for Kit B-8M	B-8F	3.95
Higgins 26' Express Cruiser	B-9	3.95
Harco '40' Deluxe Cabin Cruiser	B-10M	10.95
Deluxe 64-pc. scale marine fitting set for Kit B-10M	B-10F	4.50
Chris-Craft 63' Motor Yacht	B-11M	18.95
Deluxe 108-pc. scale marine fitting set for Kit B-11M	B-11F	7.50

MARINE DRIVES	Price
½ A (⅛" dia.) Gas Marine Drive	$2.95
A (⅜" dia.) Gas Marine Drive	3.95
BC (¼" dia.) Gas Marine Drive	3.95
Electric Marine Drive	2.25

Marine Fittings Also Available *Individually*. Ask Your Dealer.

Ltd. (Huntington, N. Y.). It is the E.C.C. No. P-100, sells for $7.95. Of polarized type, relay is very compact, measuring 1 3/16 x 7/8 x 11/16", less base pins. Has 6-pin base and socket is furnished; total weight is 1.05 oz. with socket. Comes adjusted to operate at 2.1 ma. and open at 1.8. Screw adjustments for contacts, mechanism completely enclosed in bakelite cover.

Tiny hard tube receiver, the Controlaire Model SM-1, now available from Ace Model Supply (331 N. Elm St., Fairborn, Ohio). Sold ready to use, with tube, plug and socket, but less relay, for $11.95. Weighs 7/8 oz., measures 2 x 1⅛ x 1⅛. Can be used with 45-60 V.; on 45 V., current change is about 1.7-.3 ma. with strong signal. Tiny quench coil used in this receiver is sold separately—60¢ with diagram of unusual circuit utilized in receiver.

Simple but effective proportional control pulser is sold in various forms by Stanco Manufacturers (120 E. 6th St., Clifton, N. J.). Ready to use price is $25; kit of finished parts costs $16.50. Kit of parts, some machining required, costs $12.50, while the split-type contact reel is $4.95. Unit is driven by electric motor, runs on 2-3 V. Reel is driven by belt, giving very quiet operation. Detailed drawings alone—50¢.

Positive-Flow R/C fuel tank announced by deBolt Model Engineering Co. (Williamsville, N. Y.) is improved version of earlier "clank-tank." Has internal swivel to assure fuel feed in any position. Capacity is 2 oz., tank is entirely of brass, 1½" dia. x 2" long. $1.29.

Circuits for both transmitter and receiver intended for use with their triple reed unit may be had from Radio Control Specialties (377 W. 8th Ave., Eugene, Ore.) for $3. Both are 3-tubers; transmitter operates from dry batteries.

Electronic Specialty Supply Co. (58 Walker St., N. Y. 13, N. Y.) invites hobby dealers to write for info on special R/C parts deal designed to enable retailers to get into R/C parts and kit business at low cost.

Novel receiver utilizing gas tube operating a transistor is being sold by Hobby Lobby (134 W. Second St., Ottumwa, Iowa); set is protected by plastic case measuring about 3⅛ x 1⅜ x 1⅛", weighs 2½ oz. Relay is also in case. Current *rises* to about 3 ma. with signal; set needs only 22½ V B. supply, will still work on much less. Relay contacts have special protective arc filters. Set is sold finished, with relay, gas tube, highest grade transistors and other parts, for $24.95.

Unusual relay useful in special circuits may be had from Radio Surplus Co. (1229 W. Washington Blvd., Chicago 7, Ill.) for $9.95. Called a Barber-Coleman Micropositioner, this is an extremely sensitive polarized relay, with two sets of SPST contacts. Has a 2-section coil, each winding being 2200 ohms. Will operate with one winding on .5 ma. Many conbinations possible with the two windings and two sets of contacts. Housed in bakelite case, weighs 4.9 oz. less cover, could be cut to 4 oz. Size—2 x 1¾ x 1", less cover.

Borrowed "Bucks"

(*Continued from page* 23)

and repays in 12 monthly installments of $8.67 each.

Another set-up at Stevens for easing the financial burden, although not in the loan category, might be mentioned here for its uniqueness. This is the Tuition and Scholarship Plan, whereby parents may make modest monthly payments toward their son's engineering course prior

A Circus of *Stunts* in the Air!

RING MASTER, JR.

Actual photograph of model built from kit.

Does Everything in the Book—Plus!

Kit S-5 Span 30"
Length 21½" For engines from .09 to .19

$1.95

This is it! The Jr. model of the famous Sterling Ring Master . . . created by Matt Kania, world-renowned model designer. The RING MASTER, JR. will do every stunt in the book—and then some! Built of quality balsa wood with such special features as—Shaped and notched leading and trailing edges. Die-cut ribs and tail surfaces! Die-cut plywood parts! Die-cut fuselage! Decals! Formed wire landing gear! Hardwood motor mounts! EASY-TO-READ, STEP-BY-STEP PLANS AND INSTRUCTIONS! See your dealer now—start stunting with the RING MASTER, JR.—easy to build, and a snap to fly!

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MAIL COUPON TODAY

for new Sterling '54 catalog . . . showing the world's finest collection of boat and plane models!

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1530-34 N. Hancock St.
Philadelphia 22, Pa.

Yes, I'd like to have a copy of the new Sterling catalog! Enclosed is 10c in coin to cover handling and mailing.

Name .....

Address .....

City ..... **Zone** ... **State** ...

ASK FOR ME

WRITE FOR COMPLETE CATALOG TODAY

to his enrollment.

This has several advantages. The first is that of permitting parents to spread the cost of a four-year course over a minimum of five and a half years, instead of making a few large payments when college bills come due. Second, the plan contains provision for the student to complete his education without charge in case the parent dies before he graduates. Third, the parent is not required to pay additional expenses, up to a certain limit, if the school raises its tuition fee while the contract is in force. Still another advantage is that those accepted for the Stevens T&S Plan gain automatic priority in the event the college must limit the number of freshmen it can accommodate.

If you find it necessary to borrow bucks for college by all means investigate right in your own town, region or state. The Feild Cooperative Association of Mississippi has 300 loans a year, for Mississippians only. In Baltimore, the Central Scholarship Bureau will lend up to $700 to student residents—but the money must be used directly for your educational needs (tuition, lab fees, etc.) and not for room and board. The Parish Loan Fund of Louisiana, established by the state legislature, permits high school grads to borrow up to $400 for any one year for their college education. The Florida Loan Corporation is interested in helping any needy boy or girl in the state obtain a higher education at the University of Florida or Florida State U. While a Rotarian enterprise, it is not necessary for the recipient to come from a town having a Rotary Club.

Warning: Don't be a Shaky. If you hanker to go to college, don't give up the idea because of lack of money. Start planning now. Learn what scholarships are available to you. Remember that at some of the largest colleges half the students earn all or part of their way. And as this survey on loans was intended to show, there are lots of folks in this country who stand ready to help young fellows with their education in case the financial picture grows dim no matter how hard you crank the generator.

Measure up, mister! Your future is worth the effort.

Kicker and Rocker

(*Continued from page* 47)

the boats on a line, install eyelets at frames #2 and #5. When you race, use a V harness fitted so that the boat tilts slightly down in front when suspended by the harness apex.

The original boats were built for durability and were covered with silk, which was filled with sanding sealer and doped, sanding with 400 wet or dry between coats.

The sponson fences channel the air, causing an air cushion to be built up under the stern and appear to help "surface" the prop at high speeds, but can be left off without detrimental effects on a sport model.

From here on you are on your own, as we have found no two boats of the proto types perform the same with the same prop and engine; however, a 1"/1" or ⅞"/1" prop is a good starting point for an A/2 engine.

In order to get maximum performance with your boat, experiment with different prop pitch and blade area until you arrive at the highest pitch rpm combination your engine will turn.

If you build your own props a relatively thick hub appears to allow your engine to turn up higher with the same blade diameter and area. Keep your boat bottom clean and smooth—water has a terrific drag.

NEW

5.95

BADGER

WING SPAN 72" CLASS A-B-C .19 TO .35 ENGINES

The easiest built freeflight on the market today, with a sky-rocket climb and perfect transition from power to a table top glide. A completely new design with phenominal airfoils.

6.95

COUGAR

WIN SPAN 54" SUPER STUNT .29 TO .35 ENGINES

Designed to meet the modelers need for simple construction, while maintaining outstanding maneuverability under all conditions. Known the world over for its dependability and superior performance.

6.95

PANTHER

WING AREA 508" STUNT SPECIAL .29 TO .35 ENGINES

Spectacular flying at its best. The most beautiful stunt model that can be bought. As nice to fly as it is to build. Your friends will envy you if you fly the PANTHER.

4.45

WILDCAT

WING SPAN 37" FULL STUNT .19 TO .35 ENGINES

The backbone of the country's stunt and sport flying. More Wildcats are sold than all other models in its class. For all around sport, fly the Wildcat and you fly the best.

radio control

10.95

BUZZER'D

WING SPAN 72" RADIO CONTROL .19 TO .35 ENGINES

Written testimonials prove the Buzzer'd easier to build, easier to fly, with positive control in power and glide. Thousands of flights logged. All types of radios used successfully.

3.95

BOBCAT

WING SPAN 37" FULL STUNT .19 TO .35 ENGINES

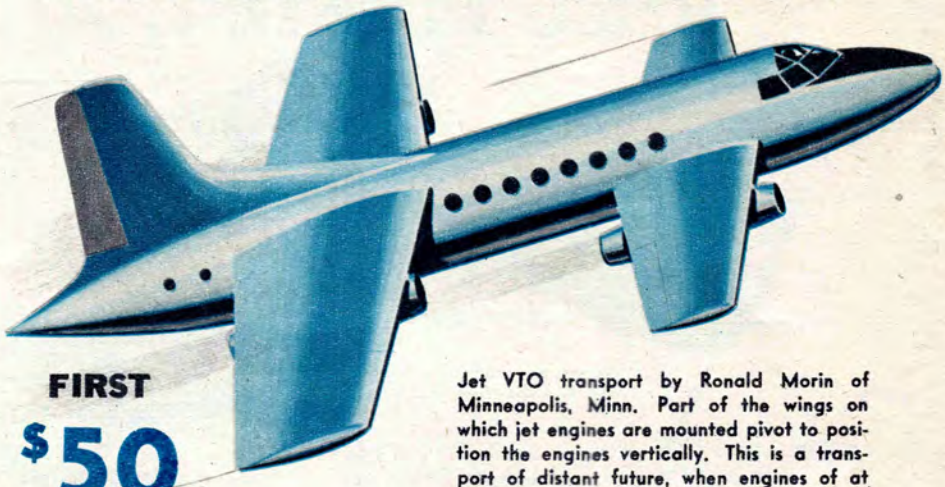
From beginner to full stunt flyer, go the way of the Bobcat and you can't go wrong. It builds easy and it flys easy. The kit is complete and the price is right. A beginners friend.

FLY WITH

KENHI

"ATH" AIRMEN OF VISION

AIRCRAFT DESIGN

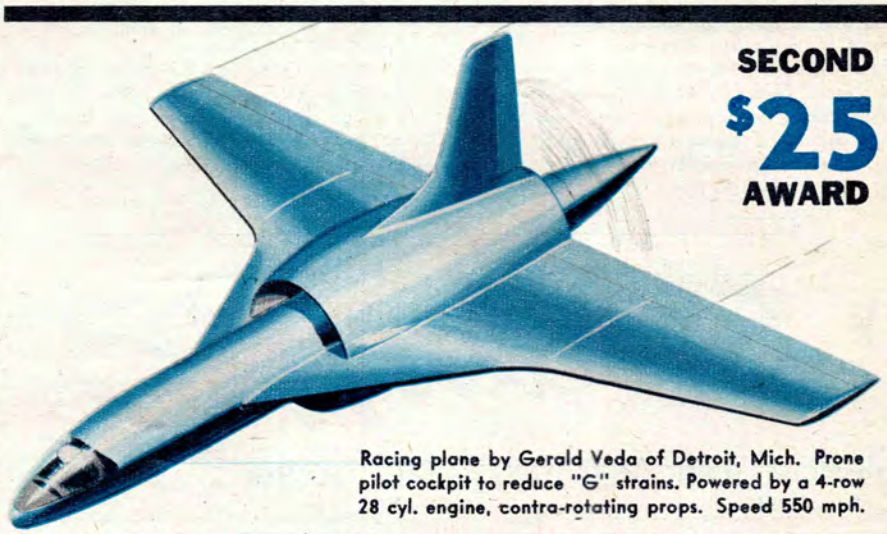


FIRST

$50

AWARD

Jet VTO transport by Ronald Morin of Minneapolis, Minn. Part of the wings on which jet engines are mounted pivot to position the engines vertically. This is a transport of distant future, when engines of at least 25,000-lb. thrust will be available.



SECOND

$25

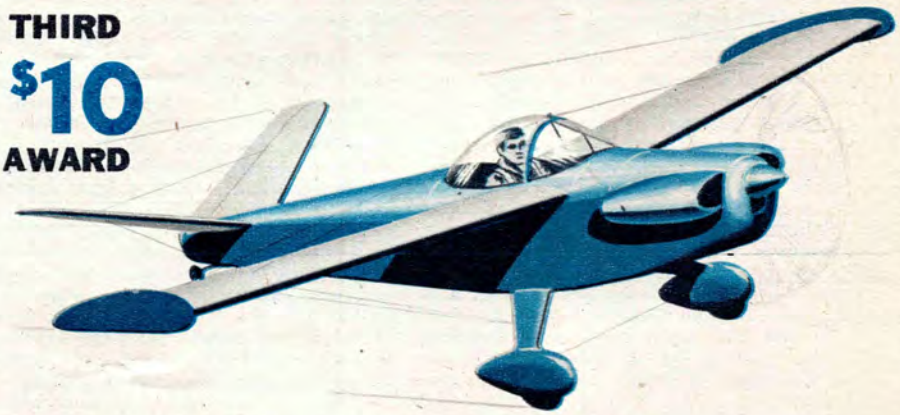
AWARD

Racing plane by Gerald Veda of Detroit, Mich. Prone pilot cockpit to reduce "G" strains. Powered by a 4-row 28 cyl. engine, contra-rotating props. Speed 550 mph.

THIRD

$10

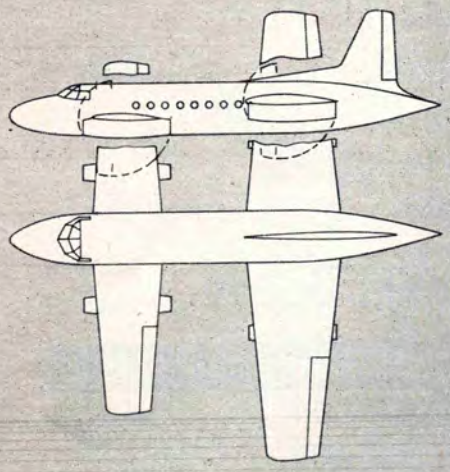
AWARD

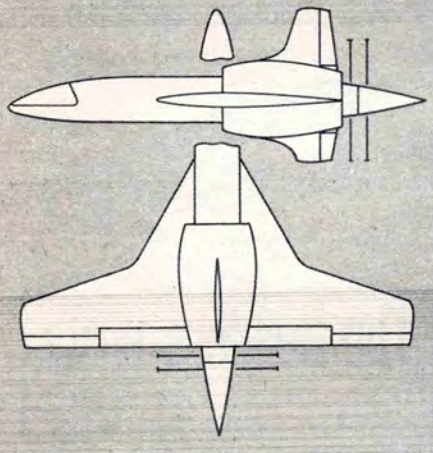


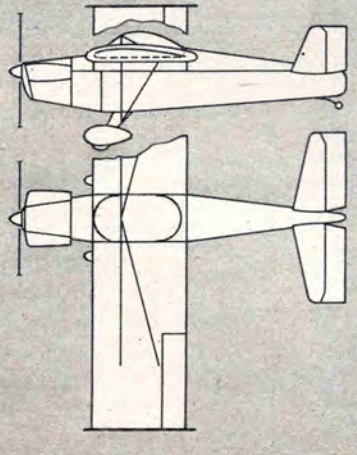
Delta Gladiator lightplane designed by three students of Northrop Aeronautical Institute, Hawthorne, Calif. and submitted by Don Chudyk. Span 22' 6", powered by 85 hp engine.

Rules governing this competition are as follows: Three-view sketches of envisioned aircraft will be required. These should be not less than 8½ x 11 inches for the entire three views. Give sketches of complete airplane or space craft in three-quarter front and rear positions. Photos of a model of proposed design may be included. Information on pawerplants(s), estimated performance, dimensions, and explanations of any unusual features are required. Data as to age, occupation or schooling of the entrant will be welcomed. The design may be of any type; space craft, commercial, military planes (fighters, bombers, troop transports),

CONTEST







planes for private flyer and sporting or racing airplanes. Entry each month judged most practical or of greatest significance will receive $50; $25 for second place and $10 for third. Mail entries to Airmen of Vision, c/o Air Trails HOBBIES for Young Men, 304 E. 45th St., New York 17, N. Y. No correspondence on entries.

NEW READY-BUILT OUTBOARDS

...for perfect hi-speed performance

If you've had little or no luck in getting peak performance out of your new gas outboard, then you're in for the surprise of your life. Here at last are two ready-built outboards that are far, far different from any power boat you've ever tried. Specially designed for the exciting new gas engines, these two rugged boats survived many weeks of exhaustive testing to perform with consistent top speed and perfect stability. In competing under actual conditions with all other available models, they proved by far the fastest and most efficient employment of today's gas outboard power. Best of all, they come to you completely pre-built. No carving, gluing, or painting is required in either of them. Read their many outstanding features listed below. Then see them both at your dealers.

SEA GULL

LENGTH: 18" BEAM: 6"

- *One-piece shock-proof plastic hull.*
- *Pre-assembled plastic seats.*
- *Brilliant aluminum fuel-proof finish.*
- *Plywood re-inforced transom.*
- *Non-sinkable under-seat floats.*
- *Self stabilising hull—requires no ballast.*
- *Completely finished, ready to run.*

Although the SEA GULL is not designed along conventional racing lines, you'll be amazed—as we were—to see it outrun the "fastest looking" boats by many laps. The reason is that it's balanced like no other boat made—designed and tested to ride *on* the water, not *in* it! For realistic beauty and breathtaking top speed performance, ask your dealer for the SEA GULL today.

$3.95

SKEETER

LENGTH: 16" SPAN: 10¼"

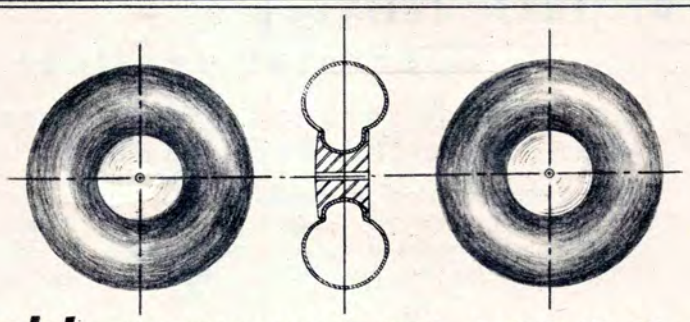
- *All wood units pre-carved from select pine.*
- *Complete assembly finished in brilliant fuel-proof lacquer.*
- *Quarter-inch marine plywood transom.*
- *Pre-drilled aluminum tie bars.*
- *Finished wood platform with plastic cowling.*
- *Stamped aluminum adjustable rudder fins.*
- *All screws furnished for 2-minute assembly.*

Truly a masterpiece of rugged simplicity, the SKEETER is adapted from an actual prototype — one of the fastest hydro designs ever developed. Twin float suspension assures perfect stability at unbelievable speeds, even in water far too rough for most racers of conventional 3-point design. Complete pre-painted wood and aluminum units assembled in 2 minutes ready for real action.

$3.95

ALEXANDER *scale models*

30 Ionia Ave., Grand Rapids, Mich.



Look! NEW SUPER R.C. WHEELS. LARGE 3¼ IN. DIA. PURE BLACK RUBBER HEAVY DUTY BALLOON TYPE—LESS THAN (3 OZ.) GUARANTEE AGAINST BLOW OUT.

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PLEASE SEND CHECK OR MONEY ORDER. DEALER INQUIRIES INVITED.

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FABULOUS MODELS

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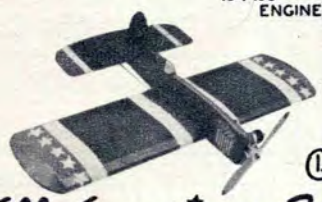
1/2A ENGINES

1.95

"Infant WAGON"

The ready to assemble ALL BALSA stunt model for all ½A engines. It has been accepted as one of the most efficient, rugged and maneuverable models in its class by those who should know!

.04-.09 ENGINES



1.95

"All American Jr."

The number 1 model in the All American Training Team. Features simplicity of construction, ease of learning and long lasting ruggedness, all essential for basic training.

.19-.29 ENGINES

3.95

"Sportwing"

An ideal stunt and combat model featuring jig assembly. HOLDER OF 4 WORLD RECORDS!

THE VERY FINEST FOR RADIO CONTROL

$6.95

THE "TRAINER" .08-.15 ENG.
THE WORLD'S MOST POPULAR R/C MODEL!

"LIVE WIRE"

The name that signifies the PROVEN BEST for all R/C flying.

Only with Live Wire Models do you get all of the Superior design Features!

NEW!

$14.95

THE "SENIOR" .19-.23 ENG. CUSTOM BUILT

LIVE WIRE "Cruiser"

dmeco's NEW REALISTIC RADIO CONTROL MODEL!

Typical of the Live Wire models is the Cruiser. Its well balanced design provides extremely realistic flight with fine wind penetration and great weight carrying ability. Construction is simple and rugged. Exclusive is the removable R/C unit. Live Wire kits are complete with finest A1 materials, precision finished ready for assembly. Plans are full size and include instructions for building, radio installation and flying. All necessary hardware is given including R/C beltcranks and horns.

FREE FLIGHT

$2.95

1/2A

THE "CLIPPER"

$3.95

THE "KITTEN" R/C

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The finest in model airplanes and crafts. Order today!

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The Readers Write

Let's hear from you! Address all letters to Air Trails HOBBIES For Young Men, 304 E. 45th St., New York 17, N. Y.

From the Desk of the Senator . . . Attached is my entry in your monthly auto design contest. This is an original design. My wife enjoys the new Hobbies for it includes things of interest to her. Previously she thought that the magazine cluttered up her book racks.

Robert C. Kettles, State Senate, Lansing, Mich.

• We liked the design. See "Auto Design Contest" in this issue.

Math Whiz Answers . . . Regarding your June issue editorial, I am herewith presenting my solution of the following problem. The number portion of the serial number of U.S. paper currency is composed of eight digits each of which can range from 0 to 9. What are the chances of calling out four different digits and not have any of them appear on a randomly selected bill? We note that the serial number can range from 0000 0001 to 9999 9999 and this gives a total of 99 999 999 different serial numbers. By mathematical manipulation we can calculate the various combinations and probability of selection. Thus the chances of picking four different digits which do not appear in a number of eight digits length using 0 to 9, is:

$$\frac{352\ 719\ 234}{20\ 999\ 999\ 790} \text{ or approx. } \frac{1}{59}$$

At first this chance of 1 out of 59 seems low but experiment here seems to prove it out. Also the fact that many billions of bills have been printed does not affect the chance. The computation involved is rather lengthy, but if you so desire, I will be glad to write it up and send it along at your request.

Hope this answers Jim Walker's question. Enjoy your mag very much and hope to be able to contribute something

America's Famous Helicopters for Your Prize Collection

Official Scale Models Win Acclaim of Experts Everywhere for Authentic Detail!

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with official insignia in Army olive drab, Navy blue, and Civilian red.

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with official insignia in Army olive drab, Navy blue, Marine blue, Air Rescue Service gray, and Piasecki Workhorse silver.
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So Real-looking You'll Think They're About to Take-off!

HELICOPTER GUIDE by "Les" Morris

The only book of its kind! Written by one of America's first and foremost helicopter pilots. Tells you everything you want to know about helicopters. Gives detailed, easy-to-understand instructions and diagrams on how to fly a helicopter. Jam-packed with illustrations and facts.
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Add 10¢ for postage and handling.

THE PIASECKI HUP $1.49
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Now Own History-Making Helicopters!
Each model is precision molded, detail for detail, in sturdy polystyrene plastic. These easy-to-assemble kits include handsome display stand, detailed assembly instructions and fascinating history of the helicopter. Dramatic natural color action picture on box cover excellent for framing. They're real prizes for your plane collection.

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and fine stores everywhere, or write direct to us. Enclose check or M.O. plus 25¢ for postage and handling. No C.O.D.s. Specify model and color.

Helicopters for Industry Inc. • 111 Cathedral Avenue, Hempstead, N. Y.

soon. Hobbies here are amateur radio W9YPV (pic of myself and station is en-

closed), mathematics and science.

William L. Janninck, Chicago, Ill.

. . . one chance out of 254.
Dale B. Sherrill, Fresno, Calif.

• The June editorial item, to which these letters are answers, was as follows: "Jim Walker of American Junior Aircraft (Fireball, Firebaby, et al) and the inventor of U-Control modelplane flying told us about the serial number game you can play with any dollar bill (or $2, $5, $10, etc.); object is to guess any four digits which you think aren't on a bill held by your opponent; he then tries it out on yours; Jim's question was, 'Can anybody tell me or express in formula form the chances against a person calling out four digits which don't appear?' Okay, you math whizzes, let's go to work!"

Edison Started Early, Too . . . Thank you very much for accepting my invention. Gee! Was I surprised to receive ten whole dollars for it. I still can't believe it was meant for me.

Robert Sojka, Danvers, Mass.

• Gee! yourself, Robert. A good idea is a good idea, and we're always happy to salute it.

[Reader R. S. is referring to double-edge razor tool he devised for notching formers and ribs: it was one of the items presented in Modelplane Sketch Book in the June issue of Air Trails HOBBIES.]

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Today's Biggest Value in ENGINES—

the Best Deal Yet!

MODEL F-29 or F-31
$11.20

To clear the flying fields of worn out, balky old engines — to give thousands of modelers a fresh start with a truly top quality engine, we make this sensational offer:

Mail your old engine to us, no matter what make, size or condition, even though some parts are missing! We will allow you $5.00 for it in trade towards a brand new FORSTER front rotary valve engine! Your old engine and only $6.20, plus 35c for postage and handling, will bring you the latest and best model F-29 or F-31 FORSTER engine, made by the oldest established model engine manufacturer in the U.S.A. and known the world over for outstanding precision, performance and fuel economy.

This is a limited offer, good at the factory only!

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JOB GUIDE

INFORMATION FOR YOUNG FELLOWS INTERESTED IN THEIR FUTURE

● To get civilian jobs with the U. S. Air Force at overseas bases, you must in most instances agree to stay for two years. Once you've completed the minimum "tour of duty" (which may be as short as a year) you are entitled to payment of travel expenses from your home in the U. S. to the foreign station and return. The more than one hundred kinds of jobs include radio repairer, machinist, electrician, woodworker and statistical draftsman. You must be 21. No competitive Civil Service exam is required for appointment—unless the appointment is in Hawaii or Puerto Rico.

● Under the Fair Labor Standards Act, the Federal law, you must be at least 14 for work *after* school hours or during vacation; 16 for work *during* school hours; 16 for jobs in manufacturing; and 18 years old for work in hazardous occupations.

● Ever wondered about jobs in the U. S. Department of Agriculture? Some random facts: The list of specialized positions includes Motion Picture Technicians and Photographers, Foreign Agriculturists (many of whom travel and work abroad), Illustrator (scientific). Vast number employed in scientific, administrative and research fields. Department conducts Graduate School to encourage employees to further their education and fit themselves for bigger and better jobs in government service. Varied courses take in sciences, languages, mechanical arts. No degrees, but credits accepted by most educational institutions. Whether stationed in Washington or other headquarters cities throughout the country, you can go to class at night, after hours, at number of colleges and schools. To learn about such post-entry education and all other information on careers in the U. S. Department of Agriculture, write for "Agriculture Handbook No. 45," obtainable for 40 cents from Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.

● Maybe you'd like to run a gas station. How do you go about it? There are various arrangements, but in general filling stations are leased by their operators—you just pay a monthly rent, and no control by the oil company. First of all, you need experience, and that may be had by working at a gas station. You will need a certain amount of capital to stock a station (motor fuel, tools, equipment etc.). For a medium-size station this should be between $5,000 and $10,000. Then you apply to an oil company for a dealership and a lease. In a well-run medium-sized station (meaning one that sells about 30,000 gallons of gas a month), your profits can be around $12,000 a year, which includes the nominal salary you allot yourself. But you must have managership and be a good salesman. Almost 25 percent of the gross profit comes from sale of tires, batteries and accessories.

● There are around 150 colleges in the U. S. which grant engineering degrees. All have certain entrance requirements—credits in particular subjects which you must have earned in high school or elsewhere. These requirements vary, and the smart young fellow is the one who checks with the college of his choice, to make certain he's taking all the subjects needed in high school. However, the following are typical requirements for entrance into an engineering college:

Algebra: 1½ units. English: 3 units. History or social subjects: 1 unit. Plane geometry: 1 unit. Solid geometry: ½ unit. Science (with lab work): 1 unit. Additional work in any of foregoing subjects: 3 units. Other subjects: 4 units. It is strongly recommended that you take more math and science than the minimum requirements. In some cases you may actually need an additional half unit in algebra, a half unit in trigonometry, an additional unit in science (best to make is physics or chemistry).

● What training and experience do you need to be a surveyor? High school grads who have taken geometry and trigonometry may enter beginner jobs—chainman, rodman—and with some technical training go up the ladder as instrument man, computer and finally surveyor. That technical training may be obtained in a short 4-6 month course at a technical school, or studying surveying courses at a college. Colleges generally include surveying as part of civil engineering. If you do have the benefit of a technical course in surveying, chances are you can skip the early beginner jobs and start out as an instrument man or recorder.

● The figures show that high school graduates make almost as much money at the age of 25 as 8th graders make at 45. According to national average income statistics, the high school grad is earning $2892 per year between the ages of 25 and 29; the college grad, between 25 and 29, is getting $2928. During the 45-54 age interval, the holder of a high school diploma is pulling down $3687—BUT the college graduate in the same age brackets is making $5549.

As noted, these figures are all connected with "average." The big point is that education pays—the more you have, the more you can expect to earn, and earn it sooner.

Trick Pix

By Howard S. Steinour
Lakeland, Fla.

"Winsome Wendy" ransacked the seashore, garden and fruit stand for hat, but where did she get that hair?

By William E. Kocher
Baltimore, Md.

Herr Professor Von Pottery is a hard-headed instructor and a pitcher upside down, its cover forming the hat.

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$25 cash award for each trick picture used here. Submit as many different entries as you wish; none should be less than 4 by 5 inches, and preferably 8 by 10 in. glossy prints. We will return all photos submitted but cannot accept responsibility in case of loss or damage. Pictures may be of one-dimensional subjects (people, inanimate objects, cartoon-caricatures, etc.), or can be table-top full-dimensional scenes. Amateur and professional photographers stand an equal chance. Keep the subjects humorous and/or unusual.

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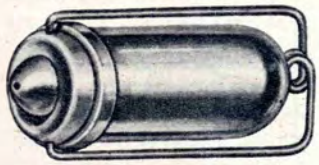

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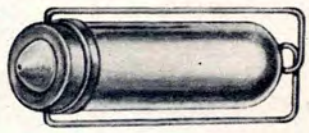

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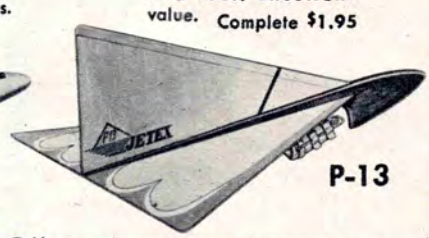

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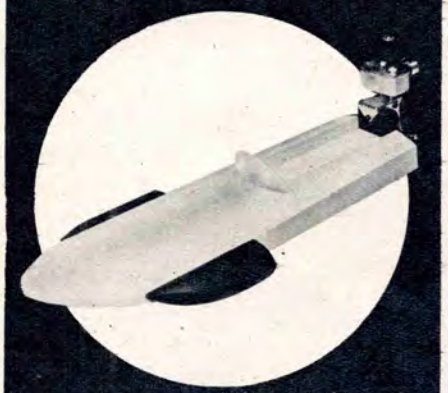

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Big K & B Stunt Engine Tops Famous Line

West Coast concern makes strong bid for place in stunt flying picture with .35 cubic inch displacement glow plug

■ Following closely on the heels of the international success attained with its .15, the K&B Manufacturing Co. has now made available its Torpedo .35. Just as the .15 was designed to meet definite requirements of free flight competition, the .35 has been engineered to meet the requirements of the control-line stunt model. The mark of the Torpedo line is unmistakably apparent in this newest member of a now famous family.

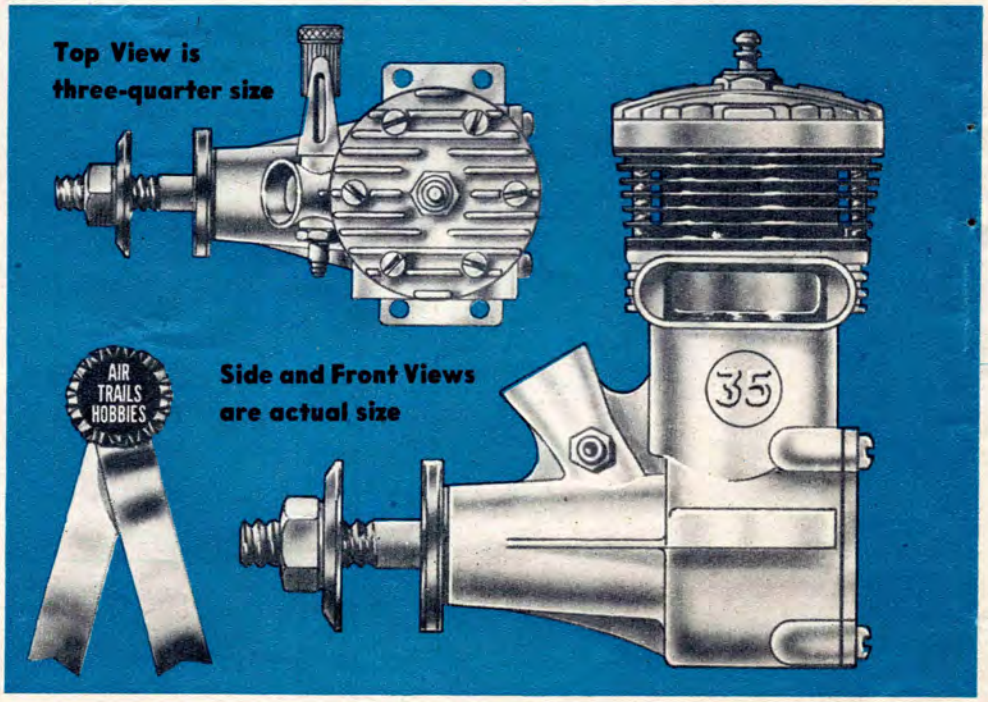
From all outward appearances the .35 is difficult to distinguish from its smaller sized brothers. However, a close examination reveals that the main crankcase casting has been modified considerably. The crankcase cover is now held securely in place with four machine screws, instead of the usual three.

The mounting lugs have been lowered so that the engine now mounts along the crankshaft center line. The exhaust area has been increased. The intake tube has been tilted forward at a greater angle. An aluminum venturi-shaped restrictor has been inserted through which the needle valve body passes. This latter design feature does much to make possible exceptionally easy starting and smooth, dependable running, over a wide range of needle valve settings. The new .35 is one of the easiest starting engines in its class.

All running tests were made with a 10/6 propeller as recommended by the manufacturer. One or two chokes and as many flips were all that was required through the entire testing period. Incidentally, priming directly into the exhaust port was quite unnecessary with the test engine. In fact, this method of starting, so successful with the many engines tested, proved the more difficult and slower method with the .35.

Due to the apparent tightness of the engine, rpm checks were held off until after the first 45 minutes of running. However, it became quite evident that here was an engine capable of an extremely wide speed range. When checks were finally begun the .35 was idling at 4,000 rpm and revving at 10,500 rpm. After approximately an hour and a half running time it was idling at a mere 3,200 rpm and revving at 12,000 rpm. At the end of two hours the .35 had gained an additional 300 rpm, but idling speed had not been appreciably reduced. It is quite safe, however, to assume that the .35 when completely broken in will peak at between 13,000 and 14,000 rpm.

Construction-wise the new .35 differs very little from previous Torpedoes. The main crankcase casting



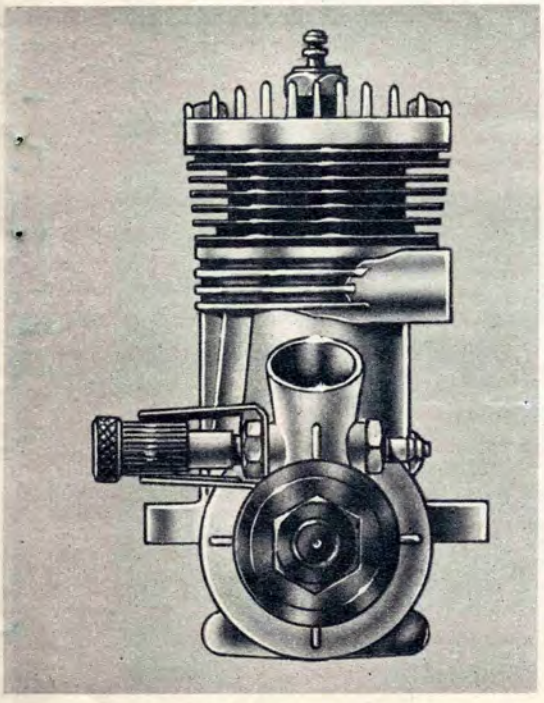
is aluminum with a steel main bearing insert. To insure sufficient lubrication, two horizontal grooves have been cut into this bearing extending from the face of the crankcase forward to a point approximately ⅛" from the front edge of the bearing. The back cover plate is also an aluminum casting.

The cylinder barrel is machined from steel. It is a hand push fit into the main casting. It is not keyed. The longer two of the six machine screws that hold the aluminum head casting to the cylinder also hold the cylinder to the main casting. The steel crankshaft is machined in one piece with the hollow crankpin an integral part. It is ground to a good finish and employs a rather moderately sized rectangular rotary port. The steel drive washer is deeply knurled to prevent prop slippage and is of the friction drive type. The propeller front washer and nut are also steel.

The connecting rod is aluminum alloy specially adopted to withstand the strains of this larger-displacement engine. The wrist pin is steel and is fitted with an aluminum pad at each end. The cast-iron piston is flat topped. It employs a straight baffle curved at its base for smoother flow. It is relieved from a point midway at the wrist pin to the skirt and is exceptionally light in weight.

Intake tube restrictor is shaped to form a true venturi tube. The brass needle valve body passes through the venturi, thereby keeping it in place. The needle valve is machined from brass with a blunt end tapered steel needle. A steel spring tensioner insures against needle valve floating at any speed. Bore and stroke are .790 and .720, making this .35 displacement engine very much under square.

Dry weight of the engine is only 7½ ounces.



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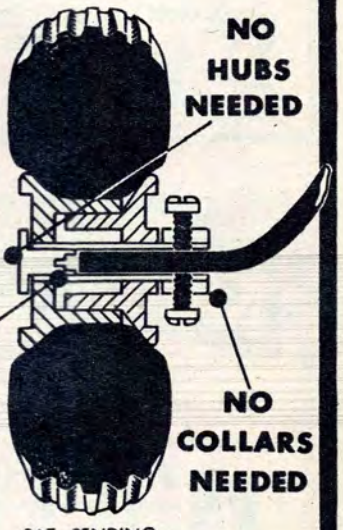

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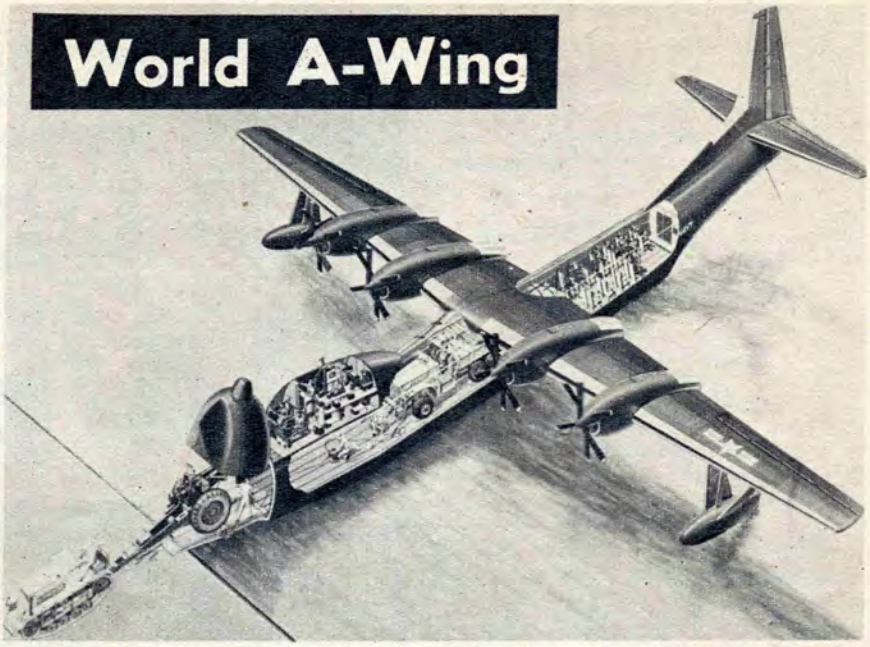
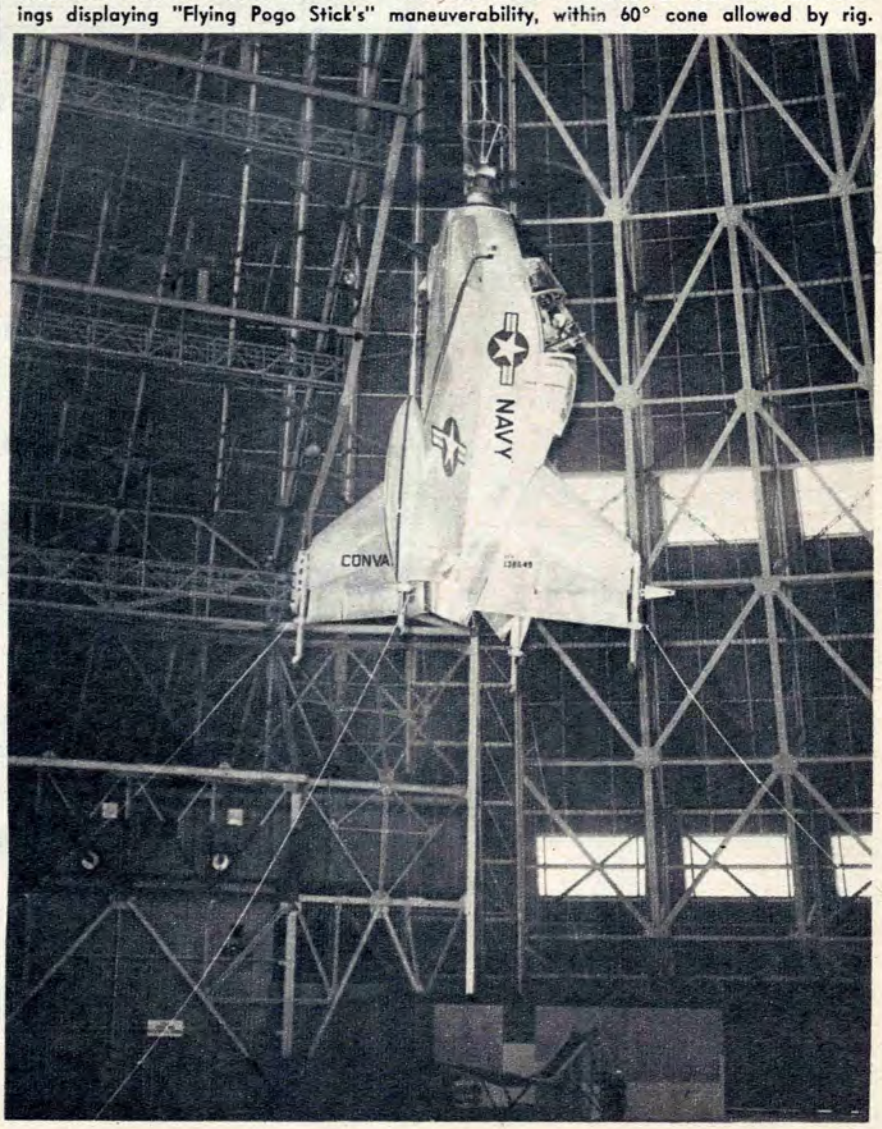


Flying LST. Latest version of the Convair turboprop flying boat especially designed for amphibious assault operation. Can carry guns, trucks, supplies or a company of Marines directly to enemy beach. For transport operation can be fitted with 103 rearward-facing seats or with 92 litters as flying hospital. Reversible props to back away from beach.

Convair XFY-1 VTO airplane demonstrates its ability to rise vertically inside the huge Moffett Field dirigible hangar. Tethered by cable rig as safety precaution, it did not need assistance from it. Pilot J. F. "Skeets" Coleman made a number of take-offs and landings displaying "Flying Pogo Stick's" maneuverability, within 60° cone allowed by rig.



B-24

(*Continued from page* 49)

left side only had orange body, black top, tires and fenders, brass colored radiator and hub caps. Mission symbols in shape of bombs were yellow, arranged in groups of five on left side only. "Ford's Folly" carried 46 at the end of her tour.

Farther aft along fuselage standard blue and white insignia were carried. Note: no red strips in bars. Large *EC* light gray or dirty white carried on both sides of fuselage. Outboard surfaces of both vertical tails were aluminum color with black band from leading to trailing edge at center. Letter *N* with bar below was also aluminum color.

Wings carried standard insignia on upper left and lower right tips. Large black *D* on aluminum circle carried on right wing top only.

Other airplanes based at same field with all-over natural aluminum finish carried similar markings. A dark green anti-glare panel was painted on fuselage top ahead of windshield extending to front side of astrodome. Bottom edge of point was on line with bottom edge of cockpit side window.

Typical examples of markings are: Small black *H* on nose, black numeral 293 on nose side. Black *EC* aft and silver *H* in black band on tails. Large *D* on white circle on right wing. Another example is same as above except numeral is 636 on nose, and letter *B* with bar above on nose and tails.

There are many other spots of color shown on drawing. These are self-explanatory and include: red fire extinguisher panels on left front and right waist. Recognition lights top and bottom, blue formation lights on top fuselage and stab. Fuel tank caps are red on wing top. Bomb release light, half white, half red below tail turret. And of course the navigation lights, red on left, green on right wing top and white on fin sides.

The many scale details on the model can be simulated in various ways depending on how much work the builder wishes to undertake. Here are some suggestions as to how this can be accomplished. Sketches are included of nose and tail turrets. They will give an indication of plastic and metal areas; note ribs running fore and aft. Rear turret has flat bullet-proof glass panel in center with area around guns open. Top turret is all plastic with slot from bottom up to center line for gun movement. The ball turret in after belly was retractable for landing and take-off. It is suggested it be left "up" on the model. The belly has a large cut-out for ball and guns.

Sketch of waist gun shows tubing tripod and link cartridge belt coming down from overhead. Note recoil damper tubes on side, twin handles and trigger housing on rear. This is added over detail on drawing of standard gun on plans. Waist windows can be left closed so that only small plastic area in center shows, or large opening can be cut in side with guns in position inside.

Pitot tube masts or booms on nose can be cut from hardwood or sheet brass. Trailing antenna post can be 1/16" dia. dowel or brass rod with small bean in end. Marker beacon antenna on belly has two short masts, these can be hardwood. Whip antenna on fuselage top can be a length of .015" or .020" wire. DF loop housing can be carved from hard balsa or soft pine. Formation lights and navigation lights project slightly, so could be made from small beads imbedded halfway into skin.

Rib stitching at rib lines on all movable control surfaces can be simu-

(*Continued on page* 74)

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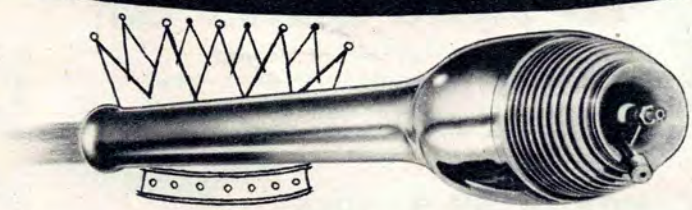

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Hobby-Model World

(*Continued from page* 10)

fly at least one minute and no streamer is cut both contestants lose one-half flight. In case of a crack-up or collision with another plane, last plane to hit the ground wins the flight. (Note: damage to plane while landing with a dead engine is not considered a crack-up.) The loss of two one-half flights by a constestant or failure to fly on second chance will eliminate the entrant. All flying lines to be .016 inch diameter, 60 feet long as measured from center of plane to center of handle (with plus or minus 6 inches allowed in length).

Contest procedure as visualized by Mr. Young would be to call all contestants together. Read the rules (above). Explain in detail and answer all questions. As on old combat flyer and winner of many awards, HRY says, "Make sure everyone understands as this will avoid arguments later." To continue—list your contestants and draw numbers for flying order. (Nos. 1, 2, and 3 get set for first round; if #1, #3—let us suppose—are first to get engines fired up, #2 will next be pitted against #4 and #5; if he doesn't get into that second round, he's finished!) Have a large "ready" area next to the flying circle with provisions for checking line length and diameter and administering the pull test. Flyers are to rig lines and have airplanes ready to fly and leave them in the ready area. When everyone is ready, Judges call the

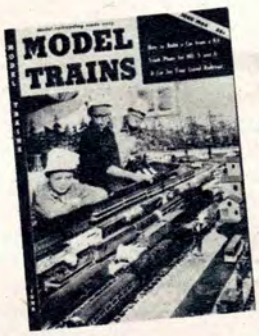
first three contestants and proceed with the contest.

"At least three Judges should be used," advises Mr. Young. "One or more should have a stop watch and time the flights, noting the time carefully so as to award credit for flights. The main duties of the Judges consist of calling the first two engines started, timing flights, and measuring streamer lengths. The Judges should also be alert for unsportsmanlike conduct on the part of any contestant while flying—such as tripping or running away. In extreme violations, the offending contestant should be disqualified."

We think these suggestions are good—still a bit fuzzy here and there, but generally good. Certainly the starting procedure of fastest-two-out-of-three would speed up the event considerably. Is there a time limit on flights? Must be, hey? Obviously if you cut the other fellow's streamer completely, then the time element enters into it, no? If your club wants to follow up on this simplified system—and we urge you to consider it—additional information may be obtained through Mrs. J. J. Urech, Heights Hobby Club, 1326 Allston St., Houston 6, Tex.

Monogram Race. Got a big boot out of a publicity release from the Monogram outfit. Company ran off "The First Monogram Midget All Plastic Race Car Contest" with 38 employees participating. Each had to assemble and paint an all-plastic Pl Midget race car. Lots of prizes with contestants divided into novice, intermediate and open class. Sounds

(*Continued on page* 78)



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Oldest and Best-Equipped Manufacturers of Engine-Powered Toys and Hobby Craft

(*Continued from page* 71)

lated by cementing lengths of thread to wood surface.

Underside of wing has large fairing behind wheel well. This can be carved from block balsa.

Detail on nacelles includes the exhaust pipe and turbo-supercharger on bottom. Carve from hard balsa or pine. The exhaust pipe is round from cowl flaps back to tapered section. This section is flattened but still oval in section. The turbo-wheel housing has rounded edges and waste gate stack is round. The skin of nacelle bottom can be cut out for this assembly. Superchargers are the same on all engines, except that on outboard engines exhaust pipe section is a bit shorter.

Cowl flaps on nacelle top and bottom can simply be drawn on surface as if in closed position. Note shallow indentation along rear edge of flaps. This extends along top and bottom only, with side areas smooth.

Model main landing gear strut wire is formed to match scale strut shape. Gear outlines can be simulated with brass tubing over the wire. Brace strut forward and retracting strut sideways can be dummied with tubing, but ends should float in nacelle and wing to allow for landing load deflections. Strut cover door on inboard side of gear can be tin-can stock soldered in place.

This about completes the gadget review. There is lots of hard work finishing up the many details, but the pay-off will come at the contests. Any model finished up with all these extras will really be a show stopper and a prize-winner.

Fly on 50 or 60 ft. length of .021 wire. Be sure model balances as shown. Add ballast to nose or tail as needed.

Aerial Horse-shoe Game

(*Continued from page* 29)

in technique is the spin. This is achieved by flicking your wrist as you let go. Just like cracking a whip.

The grip you use will be determined by the size and strength of your fingers. Jim Lang has a large hand so he grasps the boomer like a pencil. I hold it more like a club, with the little finger tucked under for spin control.

Modelers take note: The boomerang does not stray so far from modeling as you might think. It is an excellent way to work out a real hand-launch glider arm.

My partner in this sport, Jim Lang, is an aeronautical engineer. Therefore he did quite some investigating on the scientific side. As he says, "You find some darned interesting aerodynamics in the boomerang. Be surprised how it applies to model wing sections." And, "The boomerang retains its spinning throughout the flight, and actually gains rotational speed, because it autorotates as it settles."

One manufacturer of high quality, laminated wood boomerangs is Col. John M. Gerrish, 4409 S.W. Parkview Lane, Portland 1, Oregon.

Aqua-tivities

(*Continued from page* 13)

He much prefers a steering gear that can be "inched" back and forth as desired, to give accurate steering; the rudder must be capable of at least 35 degrees movement each side of center. His favorite simple control system—which allows precise steering—makes use of two pushbuttons, one for right and one for left, with a pulser at the transmitter. When either button is pressed, the rudder motor turns continuously in one direction; with both buttons up, the pulser takes over, kicking the motor back and forth, and thus holding the rudder in whatever position it is left. This system has been used widely in model plane flying, and is what we usually call "semi-proportional" control. We hope soon to have some pix of a few of Sam's fleet to show you.

Commercial News. Look up the R/C Column in this issue for info on a surprisingly efficient little electric motor that may work out well for propulsion of small boats, and in control equipment.

More details are available on the Pittman boat motors we mentioned here last month. The smaller one, Model 9001, measures about 1¾" dia. x 2" long, less shaft and mounts, and weighs 6 oz. With a Sterling 1⅜" nylon prop, it produces 2900 rpm at .65 A, with 3 V input, and 5700 rpm at 1.1 A., with 6 V. The larger Model 9002 measures 1¾" x 2½", weighs 8.7 oz. With Sterling 2" nylon prop., it gives 1500 rpm at 1 A. on 3 V, and 2900 rpm at 2 A. with 6 V. Both motors are fitted with bearings to hold a jack shaft, and Pittman makes a 2-1 reduction gearing which sells for 75¢.

We had hardly gotten the words into print, in the last issue, when there were indeed a "whole rash of new kits for the outboard motors." In fact, we were able to run pix of many of the newcomers along with the Column. Now comes word of more; Ideal Models (22 W. 19th St., New York 11, N. Y.) has an outboard cruiser, the Aqua-King, with length of 18" and 7" beam. Has preformed sides and bottom, diecut plywood, mahogany and balsa parts, metal rails, lights and horn, etc., retails for $3.95. Their "Speed Demon" outboard racer is a 15 incher with 6" beam, completely prefabbed, sells for $1.95. Another new Ideal ship is the "Sail King," 22" long cabin sailboat designed by model yacht authority Tex Foster; this one sells for $5.95.

Sterling boat line now consists of six accurate scale models ranging from 12½" to 19", each complete with die-cast parts, prop and shaft, etc. In addition, there are five more kits in the Masterpiece series—super deluxe jobs that range from 27" up to 40" in length —and all but one of which are cabin cruisers. For each of the Masterpiece models there is a separate set of fittings; there are 108 scale fittings in set for the big Chris-Craft 63' Motor Yacht! Sterling also sells Marine drive kits for Half-A, ABC gas, and electric power plants; flywheels, universals, drive shafts, etc. that are in these kits may be purchased individually.

Neat and smooth-working item is the K & O gear box, intended for use when a single motor is required to drive twin props. Smallest size sells for $1.50, is husky enough for all electric motors and Half-A gassies. Larger size has same sort of gears but the shafts for the two props are spaced wider apart.

JOIN THE A.M.A.

And Get More Fun Out of Model Aviation

The Academy of Model Aeronautics is run *by* and *for* the model airplane flyer. It is the official governing body for model aviation in the U.S.A.—it formulates the rules for contest flying—it establishes the standard to be met by contest sponsors—and it certifies new records established by model flyers.

HERE ARE JUST A FEW OF THE MANY BENEFITS:

- **A license entitling you to fly in all A.M.A.-sanctioned contests.**
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- **An opportunity to become a Contest Director or Leader Member, or both, when proper requirements have been met.**
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- **The opportunity of obtaining Model Identification Labels; A.M.A. License Number Decals; A.M.A. Membership Buttons; Contest Kits, etc., at low cost from A.M.A. headquarters.**
- **The satisfaction of helping to make model aviation safer and more enjoyable for yourself and other model builders . . . . of assisting in the advancement of model aviation in every section of the country through your A.M.A.**
- **Plus many, many more benefits.**

You get all of this as an A.M.A. member! And annual dues are extremely low! A Junior License membership (for those up to 15 yrs. old) costs only $1.50—a Senior License (16 to 20 yrs.) $2.00—an Open License (21 or over) $2.50. (All based on your age as of July 1, 1954.) Join the A.M.A. now!

MAIL THIS COUPON TODAY!

Academy of Model Aeronautics
1025 Connecticut Ave.
Washington 6, D. C.

Enclosed find $..... I hereby agree to fly my models in a safe and sane manner as prescribed by the A.M.A., and apply for full membership privileges for the year 1954.

Name.....

Address.....

City.....Zone....State.....

Date of Birth.....

Signed.....
(ATH54)

HOBBY CALENDAR

List your hobby club's public shows, exhibitions and contests here! There's no charge. Advise "ATH" not less than 90 days in advance. Give telephone of contact man if possible.

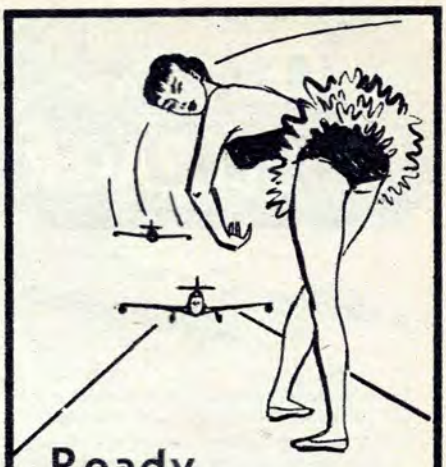
Address of contact man is in the same city as site of event unless otherwise specified.

IND—Anderson, Aug. 11-14. American Miniature Racing Car Assoc. Nationals. Info from Carl W. Noward, 1384 Berdan Ave., Toledo, Ohio.
PA—Pittsburgh, Aug. 15. Aero Club—PAL Clubs air-model championships. M. J. Thomas, 246 Morrison Dr., Pittsburgh 16.
WASH—Olympia, Aug. 15. O.M.A.C. air-model meet. M. R. Hinckley, Jr., 4409 N. 18th St., Tacoma 6.
MICH—Detroit, Aug. 15. Strathmoor M. C. air-model meet. W. E. Bartlett, 1415 Asbury Pk., Detroit 27.
OHIO—Youngstown, Aug. 15. Northeastern Ohio Model Engineers air-model meet. A. A. Terrigno, 184 Homestead Dr.
WISC—Waukesha, Aug. 15. Wingmen's annual air-model meet. W. J. Deffner, 839 Gaspar St.
PA—Waynesboro, Aug. 15. Exchange Club air-model meet. Bernard Keesler, 108 W. Main St.
OKLA—Tulsa, Aug. 15. Glue Dobbers U-control air-model meet. W. H. Kehr, 4940 N. Johnstown.
MICH—Detroit, Aug. 15. AMRCA meet. See first listing.
MICH—Detroit, Aug. 21-22. Detroit Radio Control Club air-model meet. E. S. Kratzet, 92 Moran St., Grosse Pointe 36.
WISC—Manitowoc, Aug. 22. Air Pirates air-model meet. Don Hoffman, 1026 S. 8th St.
IOWA—Waterloo, Aug. 22. Flying Aces air-model meet. M. H. Larrabee, 1901 Springview.
NM—Albuquerque, Aug. 22. Aeromodelers' air-model Rio free flight meet. R. G. Lee, Jr., 2618 Wyoming Blvd., N.E.
IND—New Castle, Aug. 22. AMRCA meet. See first listing.
CANADA—Toronto, Aug. 28-29. Inter. model boat races. R. E. Johnson, 228 The Kingsway, Toronto.
TEXAS—Amarillo, Aug. 28-29. Globe-News air-model meet. E. W. Parge, 1919 Cherry St.
PA—Lancaster, Aug. 29. Exchange Club's state air-model meet. Al Geitz, Landisville, Pa.
RI—Woonsocket, Aug. 29. Flying Fools free flight air-model meet. T. W. Wanclawik, 5 John St.
ILL—Springfield, Aug. 29, 150 mile outboard engine boat race. Springfield Marathon Assoc., 2309 E. Linn St.
CALIF—Los Angeles, Aug. 29. Inglewood Flightmasters A/2 free flight scale air-model meet. R. E. Monerieff, 2108 Santa Fe Ave., Torrance.
TENN—Nashville, Sept. 4-6. United Commercial Travelers air-model meet. C. V. Miller, 427 Deaderick St.
IND—Michigan City, Sept. 5. AMRCA meet. See first listing.
UTAH—Salt Lake City, Sept. 5-6. Ute Aeromodelers air-model meet. R. J. Barney, 1322 Wasach Ave.
MINN—Monticello, Sept. 5-6. PAA-Load air-model meet by Amer. Legion. W. H. Billett, 2548 Nicollet Ave., Minneapolis.
NJ—Far Hills, Sept. 6. Bedminster-Far Hills Lions Club air-model meet. Nelson Wertman, Far Hills, N. J.
OHIO—Akron, Sept. 12. AMRCA meet. See first listing.
IND—Boston, Sept. 12. Springfield Strato-Hawks air-model meet. Charles Greetham, 119 Cecil St., Springfield, Ohio.
CALIF—Bakersfield, Sept. 12. Gas Modelers air-model record trials. Clinton Merrill, 212 Washington, Oildale.
NY—LI—Hicksville, Sept. 12. Screamin' Demons air-model meet. P. E. Del Gatto, 123 Margaret Dr., East Meadow.
KAN—Wichita, Sept. 12. Wichihawks air-model meet. W. R. Weaver, 611 S. Lightner Dr.
NJ—Perth Amboy, Sept. 12. P.A.M.A.C. air-model flying olympics. James Froelich, Box 358, Port Monmouth.
NY—Flushing, Sept. 12. Model Knights model boat race. Kissena Park. Art Hasselbach, 8087-3rd Ave., NYC 56.

What's in the Name . . . Randolph Field?

(San Antonio, Tex.)

This great air training center, made famous as "The West Point of the Air," was named after William F. Randolph, a native of Austin, Texas, who entered the Army in 1916 and became a flyer during World War I. While serving as adjutant of the Advanced Flying School at Kelly Field, Capt. Randolph was appointed to a committee which was to select a name for a new Air Corps base being built in the San Antonio area. Before the committee was able to reach a decision, an air accident claimed Capt. Randolph's life. At the proposal of Major General Fechet, then Chief of the Air Corps, the name "Randolph" was adopted for the new location and the field was so dedicated in October, 1928.



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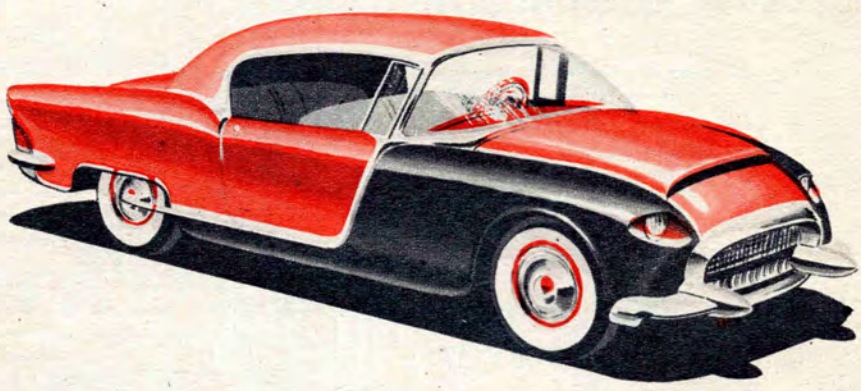
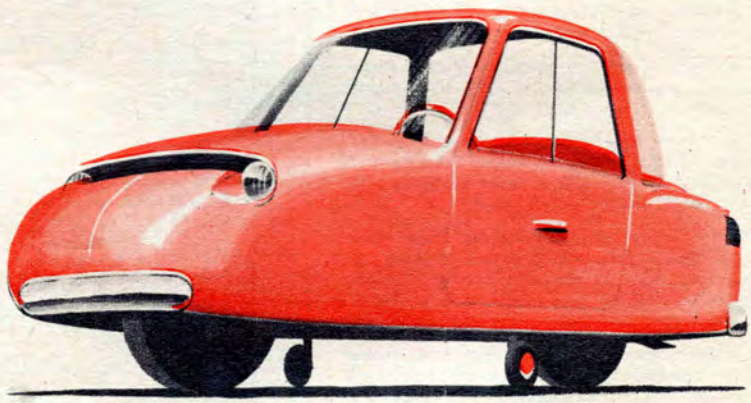
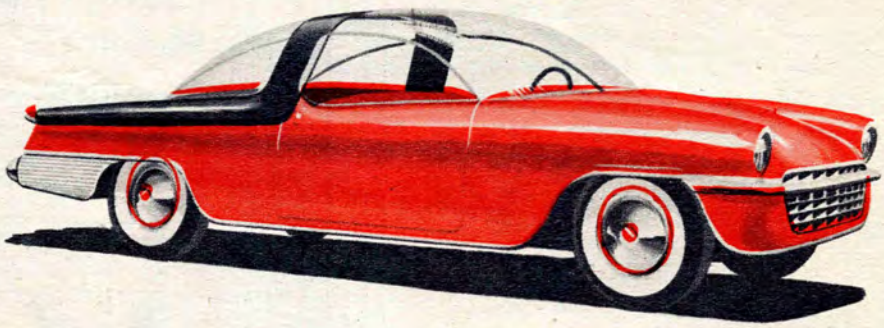


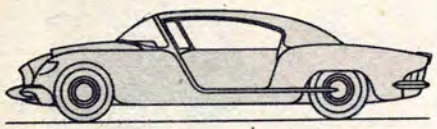




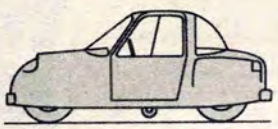
AWARDS OF $50.00—$25.00—$10.00 EVERY ISSUE

Cash awards will be made each issue for the three most significant auto designs submitted to this magazine. $50 will go to the top design, $25 to the second and $10 to the third. You may submit sketches for an original design auto, for a restyled car, for sportscars, family sedans, record cars, hot rods, military vehicles or unusual trucks. Include side, front, rear and top drawings, plus sketches of the proposed vehicle from three-quarter front and three-quarter rear positions. Sorry, we cannot enter into any correspondence about this contest. Send entries to Auto Design, c/o Air Trails HOBBIES For Young Men, 304 E. 45th St., New York 17, N. Y.

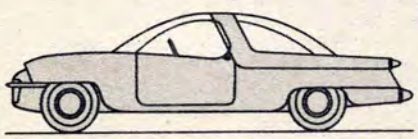
It's easy to enter—see rules announcement!



First prize winner: an ultra-modern hardtop based on the Oldsmobile by Walter Holmes of Chicago, Ill. A low, racy job quite in style with the experimental cars shown each year at the GM Motorama. Front treatment of the air scoop, which recently became so popular, is integral with the hood and does not impair forward visibility. Headlights are of the "eyelid" type, recessed into the fenders. With this type of body, front and rear fenders are visible, a boon to parking.



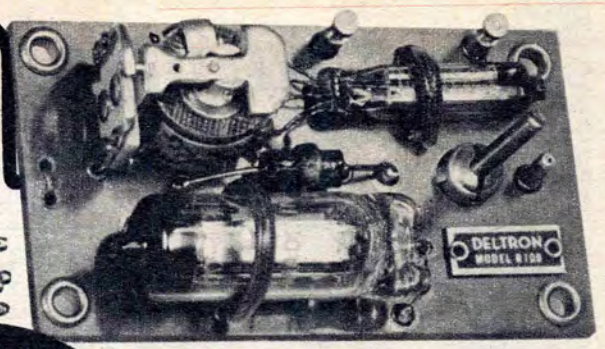
Second prize, a two-seat, enclosed motorcycle by Pvt. Tom Michalek of Fort Bragg. This is a splendid idea long needed by those who enjoy the thrills of a motorbike performance, but prefer the comforts of a car. Actually the vehicle is more what is known in Europe as a "cyclonette" than a motorcycle. The engine is located in the rear. Two small side wheels balance machine at rest. The doors are hinged at the top, the windows pivot.



The "Senator," a 5-place sport sedan by Michigan's State Senator Robert C. Kettles of Lansing. Has a very modern, streamlined body which should be capable of well over 100 mph with its V-8 engine. The top is of tinted, transparent plastic, with the exception of the metal arch which can serve as an overturn structure. Needless to say, the visibility here is as good as in the open car with added weather protection. Ferrari-like grille. Overall ht.: less than 5 ft.

All types are eligible: restyled passenger cars, original sport jobs, hot rods, or military types.

R-100 RECEIVER
Shown actual size:
3"x1⅝"
Weighs less than 2 oz.
including plug



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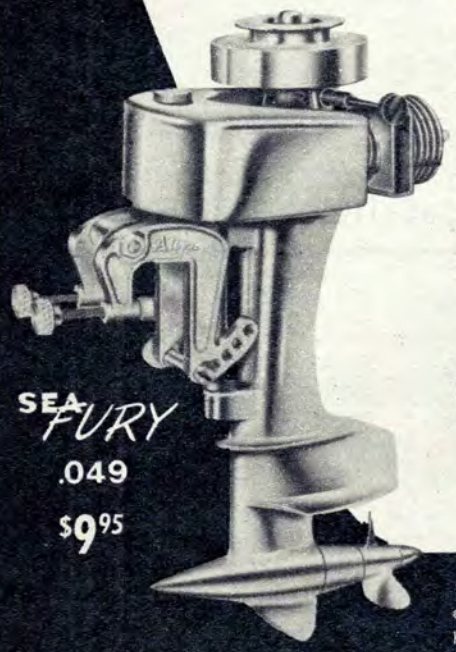
F-B MODEL AIRCRAFT — 3240 LARIMER — DENVER 5, COLO.

Zoomin' IN POPULARITY

The Pair to Buy



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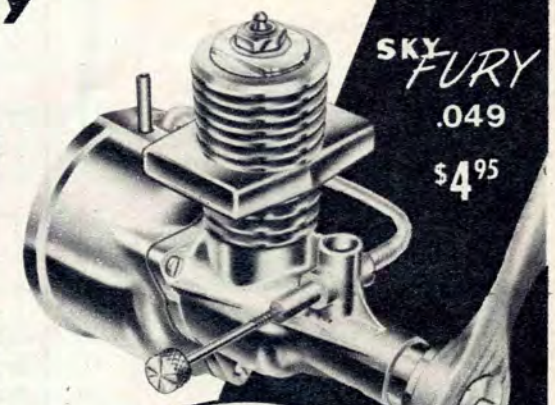
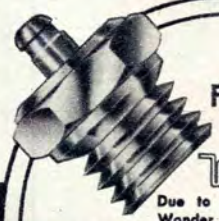
The SEA FURY*, the first ½A gas powered outboard, is zooming right into the hearts of boat modelers everywhere. Transom bracket adjustable to 5 positions. Engine is swivel mounted for various degrees of turn. Precision built of the best materials, it performs and looks like a big outboard. Just clamp it on the transom of your boat and it's ready to go. A real value and lots of fun!

*The FURY engine is especially engineered for an outboard powerhead to give you a continually cool-running motor.





The FURY Glow-Plug with the Wonder Element

Due to length and depth of the Wonder Element the FURY Glow-Plug operates at peak efficiency in all types of glow-plug engines. The particular shape also affords greater strength for longer life. Try a FURY Glow-Plug and you you can hear the difference. 65c

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OUR LATEST PRODUCT. THE NEW "CUSTOM MIDGET" CONSISTING OF EXAMINATION FREE BAND (27 M C) TRANSMITTER, NEW SMALL SIZE, PRE-DRILLED BASE 3" X 4" HOUSES INTO BOX 4½" X 5⅛" MAY BE HAND HELD OR PLACED ON GROUND. KIT PROPERLY CONSTRUCTED FROM OUR PLANS AND INSTRUCTIONS HAS A RANGE UP TO 1 MILE OR OVER. NEW "CUSTOM MIDGET" RECEIVER, LIGHTER THAN ANY OF OUR PAST KITS UNDER 3 OUNCES INCLUDING RELAY. 10,000 OHM SIGMA COIL EQUIPPED RELAY IS INCLUDED, PLUS SILVER CERAMIC TRIMMER, MIDGET CONDENSERS, RESISTORS, NYLON COATED COIL WIRE, CHOKE FORMS, ETC. MAY BE USED IN ⅛ A MODELS PLANES, BOATS, CARS UP TO 6 FT. SPAN OR MORE. PARTS FOR MAGNETIC ACTUATOR ALSO INCLUDED. ACTUATOR DOES NOT DEPEND ON WOUND RUBBER MOTOR FOR POWER. IT OPERATES FROM BATTERY SUPPLY ALONE. WILL OPERATE RUDDER OR COMBINATION OF RUDDER AND ELEVATORS. WEIGHT UNDER ¼ OUNCE. LESS TUBES, BATTERIES, KEYING LEAD, ANTENNA. RECEIVER VARIABLE RESISTOR, CRYSTAL.

"CUSTOM MIDGET" RECEIVER TRANSMITTER and ACTUATOR..... $9.98 ☐

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3-A-4.....	1.00 ☐	0-50 Meter.....	2.75 ☐
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Hot Powered! Build-it-yourself kit includes battery-operated magnet motor & screw kit; 11" pre-fabbed hull, deck and hatch cover; and all deck fittings. Get it in the water and watch it go! Terrific Value **$3.50 ppd.**

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Sorry—No C.O.D.'s Money Back Guarantee

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(*Continued from page* 73)

like fun. Wonder how many other model manufacturing firms convert their employees into model builders?

Fabulous Flying Field. Not to mention an unusual club, too. That's the New Orleans Aero Club we're telling you about —85 members strong.

The organization's president is Paul A. Burvant. In addition to regular officer set-up, NOAC has a chairman for speed events, one for free flight, another for radio control and one for "special control line events."

At first glance this might appear to be too much "organization," but Mr. Burvant assures us that this arrangement has worked quite well in keeping the various groups together and interested in the club. Each group is allowed a minimum of three club contests per year and it's entirely up to the section chairman to plan and arrange for such activity. Each chairmen drafts one or more members to assist him in making rules, setting up the event, and so on.

The club furnishes small trophies; the more entries the more trophies.

Uniting all branches of model aero building and flying into a single organization helps keep the boys much closer and in such numbers as to insure the privileges and facilities that they need in this particular hobby.

And to prove his contention president Burvant sends along information on just about the most fabulous model field the South has ever seen.

Through the active assistance and leadership of Louis J. Roussel, president of the Orleans Levee Board, the NOAC now operates the Charles A. Donelly, Jr., Memorial Model Airport. The name honors a former modeler and World War II combat flyer who was killed in action.

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Size #1, 2 or 3, each.... .10
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Introducing a brand new monthly magazine, called the E and H A-B-C Digest. The price is 1.00 per year for 12 issues and it is only available from E and H Model Hobbies. We will send one sample copy free, if you write for it . . . but, please print your name and address! If we can't read it, we don't send it! Further, we offer a free one year subscription to anyone ordering $2.50 or more during June and July. Offer expires July 31st, 1954. So, send your order to us . . . today!

SPECIAL OF THE MONTH—Anderson Spitfire Ace ½A Free Flight Plane—Assembled Ready-to-Fly with Spitzy .045 Glow Motor Regular Price 5.95—E and H Special 3.95—Limited Supply—Order Now!

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Absolutely Free—with any order of 5.00 or more—a model kit of our choice—worth a 1.00 or more!

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This field is for control line flying, it's fenced, has four flying circles and is lighted for night flying.

Listen, all you flyers who must suffer with makeshift facilities . . . may your reluctant city "fathers" note well these facts. The Donelly flying field was filled, graded and enclosed with chain link fencing. It is 380 x 320 feet. It has three flying circles for 60-foot lines, one for 70-foot lines. The latter has a 15-foot-wide paved concrete take-off strip that runs halfway round the circle! One of the 60 foot circles has a similar 15-foot-wide take-off strip. Six-foot diameter concrete slabs have been laid at the center of each circle.

And in addition to all this, there is a Half-A circle.

A two-story control tower has ample facilities for all contest tabulation work on its top floor, lower floor has emergency work shop facilities and ample storage closets. Rest rooms, drinking fountain, flag pole, flood lights, parking space, public address system, intercom system from flight circles to tower, 8 x 10 foot contestant pits, bleacher seats. Man, oh man, how far is it to the City of New Orleans?

Take our advice. If you think you can interest influential folks in your community in helping provide similar model flying facilities, why not drop Mr. Burvant a line?

We're sure he would be delighted, on behalf of the New Orleans Aero Club, to be of all possible assistance. His address is 77 Spanish Fort Blvd., New Orleans, La.

Credit Where It's Due. That National Modelplane Washtub Trophy (page 4 of *Hobbies*' July issue) was conceived by Walt Billett of Minneapolis, and not the

(*Continued on page* 81)

New! WORLD'S LARGEST GAS MODEL BOMBER B-25

67" Span. Length 49". "U" Control, Radio Control, or Free Flight

This 1" scale model can't be told from the real North American B-25 Bomber. Features of the construction set are 3" scale rubber tired alum. disc wheels, 4¼" alum. cowls, planked type balsa fuselage, ready cut tail and rudder balsa, alum. guns, all parts, and full size drawing. For easy handling of this model, the outer wing panels are removable, reducing the wing span to 30". Two OK 14 or 23" type motors can be used. Const. set, postpaid..... $20.00

9' TAYLOR CRAFT GAS MODEL

9 foot span. Can use Radio control. Set has 36 ready cut wing ribs, cut plywood body formers, 16" carved prop, tail wheel unit, 2 full size plans, printed balsa, silkspan, etc. Uses "C" type motor, single, twin, or 4 cyl. motor. Set without motor or wheels, postpaid..... $17.50
Extra pair of 4½" airwheels, $3.00

Grumman-F3F1

32" span. 1" scale. Const. set. Rubber driven...$4.00

Curtiss F11C4

32" span. 1" scale. Const. set. Rubber driven..$4.50

NEW PIPER CUB GAS ½ A

26" Span. Uses .035 to .049 gas motor. Set has printed body sides. Very strong and very light; scale rubber Veco wheels and prop. A real beauty in its class. Const. set..... $2.00

BOEING PT17 GAS

45" Span. Can use 5 cyl. M5 motor to scale or B or C type motor. U control. Set has scale rubber wheels and all spec. parts, ready cut wing ribs, tail wheel unit and wheel. Const. set.. $9.95

Add 25c for postage. Catalog—10c coin

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MAKE YOUR HANDS MORE CREATIVE WITH X-ACTO

for any MODEL AIRPLANE

flying or solid scale; glider, rubber, gas or jet; free flight, radio or control line.

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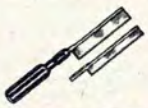
Block Plane — $1.20



Razor Saw—$1.75

Designed by model craftsmen and precision-made for fine work

WILL HELP YOU DO A BETTER JOB

and get more fun and satisfaction from your hobby.

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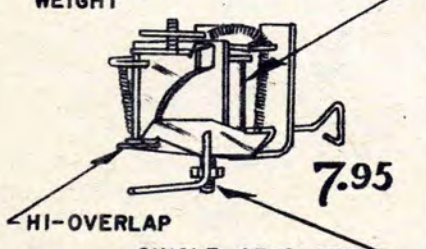

HI-OVERLAP

SINGLE STUD MTG.

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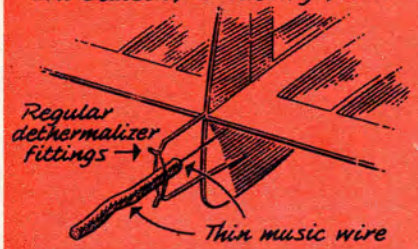
P.O. Box 643 Union, N.Y.

Fire hazard of fuse-type dethermalizer is reduced by wire stem to hold burning fuse after dethermalizer trips— By Ira Deutsch, Woodbridge, N.J.

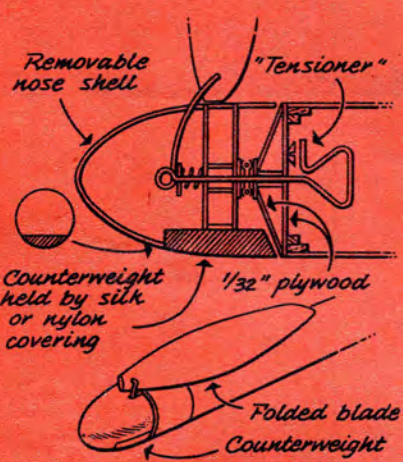


"Color trim" without masking is the idea of Carl Barnes, Columbia City, Ind. Exposed edges are color-doped before covering— Clear dope on covering bleeds color through for trim —

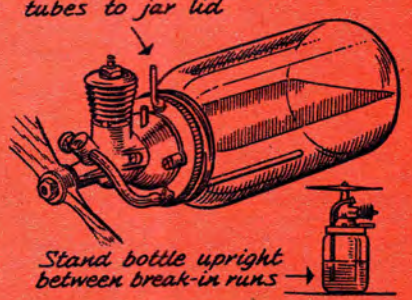
Sketch-book

Have you developed something new in construction, control or flying? Send a rough sketch—we'll redraw it and pay $5 for each accepted. Contributions should be original ideas; sorry, we cannot enter into any correspondence on submissions.

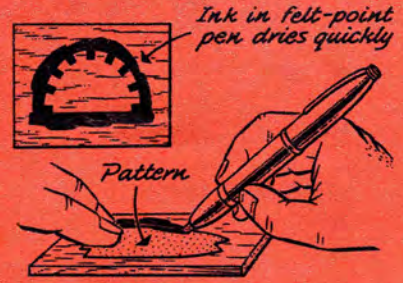
Brilliant trim, numerals, emblems for model decoration may be cut from aluminum foil reports Bill Weise, Tipton, Kansas —



Mayonnaise or large size dope jar serves as convenient break-in engine tank-mount. Unit is conveniently hand-held says Scott Prindle, Chicago, Ill.

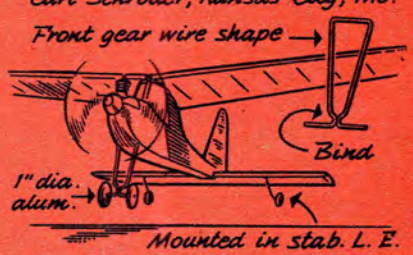


Jim Cahill, Albuquerque, N.M., former Wakefield champ, suggests tungsten alloy as material for flush-mounted propeller counterweight. Weight permits forward wing location and smaller tail —



A felt-point marking pen is ideal pattern tracing tool says John Frankosky, New Albany, Pa. Duplicate parts are easily made —

Variation of tricycle gear for payload models improves take-offs & landings. From Carl Schroder, Kansas City, Mo.



(*Continued from page 79*)

Twin Cities Hobby Dealers (can't imagine where we got that idea). We're told Walt designed, executed and painted the contraption and first presented it to Cal Calrow for his contribution to model aviation in the St. Paul-Minneapolis area. Cal promptly hid it in his cellar; Billet retrieved it and next gave it to Bill Effinger "to show my appreciation of his generous presentation of special annual awards to A.M.A. and model industry folks who made significant contributions to aeromodeling."

Walt's trophy is nearly as large as his heart; he's a grand fellow and almost single-handedly is operating the Flying Eight Ball Club.

Jax Reorganizes. The old Jacksonville, Fla., Model Airplane Club has been organized as the Jacksonville Flying Rebels M.A.C., advises secretary C. T. Hampson (5269 Park St.). Club will repeat its successful radio control meet of last year over Labor Day. Write C. T. for dope.

Quest and Query. Wants Morton M-5 5-cylinder radial engine. Loring Roever, RR #2, O'Fallon, Ill. . . . Hopes to link up with air-racing fans who will swap data, photos and magazines, D. N. Tattersall, 14 Tracks Lane, Billings, Nr Wigan, Lancashire, England.

International Eliminations. Been getting some very spotty information on who qualified for places on the American Wakefield, F.A.I. gas and A/2 Nordic glider teams. Good thing we have an A.M.A. headquarters to pull all this together. But we must salute Joe Bilgri of San Jose, Calif., for doing the only real reporting job we've seen to date. Joe mailed a report, "Results of West Coast Nordic Eliminations," which gave a short story on meet and the flight times of each entrant. Clark Hahn qualified for a place on the U.S. team with a 5-flight total time of 567 seconds; his model was sent to Denmark to be flown by proxy.

All the way from Buenos Aires we received a splendid report on the Argentina Wakefield team. To determine who should represent that country, a qualifying competition was set up under which model flyers had to make a total of 15 flights during eight consecutive days—all flights to be made after 7 p.m. (to diminish thermal assistance) and each under a 3-minute maximum. Top performers were Cesar Altamirano, 44 minutes, 29 seconds; Ernesto Solom, 43:03; Fabi Mursep, 40:19; and Eduardo Benavidez, 40:00. Mr. Mursep who is the president of the Federacion Argentina de Aeromodelismo furnished the data. He reported that John "Pop" Royle of England, who has previously represented Great Britain in the Wakefield finals, participated in the flying and scored top time of 44:21, making it clear he had no aspirations to be included in the official Argentina team!

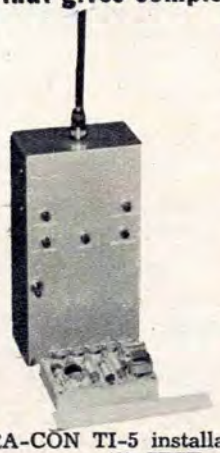
Heading for Hong Kong? Got a telephone number for you to try while there. It's the Hong Kong Model Engineering Club, founded in March '53, currently boasting 52 active modelers. Main interest is in control line stunt and combat, gas free flight and radio control. Then come powered boats, rubber powered free flight, gliders and powered cars. Quite a broad field! Andrew K. C. Wong is the Hon. Secretary; his phone is 53656. Apparently things were livened up in H. K. when Pan American's George Gardner blew into town with a cargo of Bulova wrist watches. Mr. Wong speaking:

"It gives me much pleasure to enclose a photograph of your 'Blue Boy' powered by a Mills .75 c.c. diesel engine together

Most Practical Radio Control Available to Modelers Yet!!!

The New, Dependable RA-CON 5-CHANNEL R/C

that gives complete control of rudder, elevator, and motor speed without pulsing an escapement.



RA-CON TR-5, 5 channel receiver weighs 8½ oz.—extremely low current drain made possible by using sub-miniature tubes. One simple tuning adjustment. House in rugged aluminum cover. A reliable resonant reed receiver—Deluxe in every respect.

Price with tubes, relays, connectors and instructions — only..... **$99.50**

RA-CON TT-5, 5 channel transmitter with a telescopic, detachable antenna. Weighs 4 lbs. with batteries. Housed in sturdy metal, gray hammertone case (3 x 5 x 10) completely self contained, hand held type, with 5 push buttons for all controls. License—free freq. (27.255 MC).

Price including tubes, crystal, antenna, less batteries, only..... **$60.50**

RA-CON TI-5 installation kit contains receiver connector, coded wire, battery connectors (2) SPST on-off switches, phone jack, meter jack. Highest quality items that simplify receiver installation. Price only..... **$3.25**

Bonner Servos, available at moderate prices are highly recommended.
Resonant Reed Assembly, 5 Channel..... **$19.95**

TERMS: Cash with order or ⅓ with order and balance C.O.D.

NOTE: On prepaid orders, we pay freight, dealers inquiries invited.

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A Control-Line Sport Model and Super Stunt Trainer. Extremely easy to assembly this Beautiful Performer. Wingspan 36", Wing Area 354 sq.in. (including Flaps) Engines .19 to .35 cu. in. disp.
1954 'Veco' .29, .31 & .35 Engines
With 'TEMPERATURE CONTROLLED CLEARANCE' The latest engineering development in miniature engines. TRIED . . . TESTED . . . PROVEN to give GREATER ALL AROUND PERFORMANCE than ever before achieved. Convert your old engine, See Your Dealer.
★ Soon to be released . . . the 'Veco THUNDERBIRD' winner of the Calif. Open Stunt Championships at Santa Ana, Calif., May 29 & 30. Flown by Bob Palmer. ★
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FULL 5 WATTS — 2 TUBE OSCILLATOR 180V. VIB. SUPPLY — HD 2 VOLT CELL BUILT IN CHARGER/110VAC & 6 VDC AUTO. MULTI-PURPOSE METER READS—0-250V and 0-50 MA. OF TRANSMITTER. 0-5V-50V-250V, 0-5 MA. FOR EXTERNAL CHECKING. FAST ACTION KEYER SWITCH. 9½ FT. WHIP ANTENNA. BLACK WRINKLE CASE. ONLY 5 x 9 x 6 HIGH. WT. 10½ LBS. A LIFETIME OF TROUBLE-PROOF OPERATION IS GUARANTEED BY ESSCO'S HIGH QUALITY WORKMANSHIP AND MATERIALS. AVAILABLE FROM STOCK AT YOUR FAVORITE DEALER OR ORDER DIRECT FROM BOTH ESSCO BRANCHES..... **$49.50**

THE NEW ESSCO RCX FIVER
A new compact HI POWER 2 tube full 5 watt completely packaged RF unit. Factory assembled and wired, equivalent to printed circuit type of construction. Chassis base 3 x 4. Ready for installation in your own cabinet. Why knock yourself out building your own? For less than cost of kit of parts. Complete with tubes, Petersen Z9A crystal and keying cable assembly..... $15.95
Installed in handsome carrying case with handle and 9½' whip antenna, complete transmitter less batteries..... 24.95
A parts kit to build your own, including case, antenna, RF assembly (all major mechanical work completed)..... 17.95

THE NEW ESSCO RCX JR. TRANSMITTER KIT. A new compact HI POWER 4 watt transmitter. RF subassembly consists of drilled base and assembled components. Requires half hour to wire up and test. Complete set of highest grade components, tube, Petersen Z9A crystal, 9½ ft. whip antenna w/mount, keying cable assembly. Complete assembly instructions. RF assembly can be used to rebuild your present low power transmitter such as Aerotrol and others.
THE BIGGEST BARGAIN IN R/C today SPECIAL..... 12.45
Installed in handsome carrying case with handle and 9½' whip antenna, complete transmitter less batteries..... 19.95

THE ESSCO-PAK-2. A new 2 volt vibrator power supply that delivers the required HV under full load. Does better than PE-157 unit. Don't be misled by claims of others using 12-year-old power transformers.
Complete factory wired supply..... 11.95
PARTS KIT TO BUILD YOUR OWN..... 8.95
BB-54 2 volt cells, fresh stock..... 2.50
CELL WITH ELECTROLITE & CHARGED..... 3.25
(Shipped by EXPRESS only)
ESSCO-CHARGER, for 2 volt cells from 110 VAC or 6 volt automobile battery..... 5.95
REPLACEMENT VIBRATOR, for MAC II etc.. 1.25
POWER TRANSFORMER, for 2 volt supply, del. 180V/40 ma..... 4.95
McEntee "MINI 50" complete parts pkg..... 6.95
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with a trophy and perpetual shield which I won at the first PAA sponsored model Clipper Cargo competition held in this part of the world. A total of 13 ounces was carried to win the competition in which 25 contestants of various ages competed.

"The aim of our club is to promote interest in model building throughout this Colony and towards this end we approached Pan American World Airways to hold their PAA-Load and Clipper Cargo competition in Hong Kong. The PAA-Load event was the first open competition for model airplanes held in Hong Kong since World War II. It was staged on December 25 last year. This event I also won so I am the proud possessor of the Bulova gold watch which was awarded as top prize. Our club would like to meet modelers in the services of our allies, especially welcome are U.S. service personnel who come to Hong Kong on recreational visits. Honorary club memberships are open to them as well as the use of our flying field."

WESTERN ROUNDUP

California State Championships at Santa Ana attracted model builders from Lubbock to above San Francisco. This two-day meet found modelers again getting into trouble due to the military necessity of closing the field for the air show prior to the previously agreed quitting time. This led to quite a few complaints since flyers were in line and according to published schedules there was flying time left. In most cases this could be traced directly to the contestants' lack of preparedness, since there was plenty of time in the morning when no one was flying at all. Most of these complaints came from speed circles where high speeds in all cases were posted in the morning. In attempting to make things right for the ones left in line, five flights in B speed were allowed the following morning—man, did the protests really begin to fly then!

It is important for all of us that some understanding be reached about this touchy situation. We can vividly remember a particular instance where a National championship was decided due to an early closing of a National Contest. The closing was not the C-D's fault and no protest was made other than a verbal explanation, and that was it. Now if it is so simple for a Championship to be decided, how come these local gripes? It's still not the C-D's fault, the military is certainly not at fault—it is their facility, loaned to you for free, they house you very cheaply, give you darn good food, protect your models, give you wholesome recreation. Perhaps this whole thing is due to lack of preparation, perhaps the model builder himself is to blame. One thing that could be done is to arrange the closing time for any event to be a half hour prior to any scheduled air shows. We think that this is the logical solution. No more gripes, get out there and fly! We believe it is the contestant who is at fault; they usually have plenty of time to put in their flights.

Conditions for free flight gas, rubber and the gliders were pretty good, times were high, chasing was wide open and spacious, most models dethermalizing after 6 minute flights still landing on the field. The Torp .35 made a debut—man, what power, those Thunderbug Sailplanes really went up. One U-controller kept up his refuel feed-line job over 3 hours. Indoor glider flying found Jack Ritner breaking the Senior record by 8 seconds, Ed Slobad pushed the open record but couldn't quite beat it. Indoor flying saw lots of flights over 25 minutes.

(*Continued on page* 85)

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'Round the Track

Interested in model cars, scale vehicles? Then this is your department. Let's hear from you, send along photos

■ Dates for the American Miniature Racing Car Association Nationals for 1954 will be August 11-14, and the place Anderson, Indiana. Banquet will be held on the night of the 13th (maybe this is a bad omen—for the records that are going to fall; it's Friday the 13th!).

Bob More (66 W. Elizabeth Ave., Bethlehem, Pa.) has sent some pictures of racing activity, one of which we reprint here. That blur is a Spur car that has just been pushed off by Jimmy Petrakis of Bethlehem; gentleman in the foreground is Nick Amoresano. Track is the 24th Mile Fox Speedway at Bethlehem.

Bob asks us to remind race car enthusiasts that a big meet will be held at Fox Speedway on Sunday, Sept. 5. Most of the Midwest hotshots are planning on attending this one; they expect to fly in in a chartered plane. Speedway is located 3.2 miles north of the Bethlehem High School on the Bethlehem-Nazareth Pike. Refreshments will be furnished at moderate cost—everything else free. Bob expects that at least 50 cars will be on hand.

We have heard rumors that an organization called the I.M.R.C.A.—which we assume stands for International Model Race Car Association—has held some races on the West Coast, but have not been able to learn much about it. Woody Woodward (331 E. H St., Ontario, Calif.) wrote that his group has not heard anything from the I.R.M.C.A. in some time. Anyone know the story on this car organization?

We learn from Carl Noward that all of the cars of Glenn Mathews are for sale, Philip J. Rich (Rockford, Ill.) handling the arrangements. Plan is to bring the cars to the Nationals in August, and place them on display in the hope that they will be sold.

An idea has been advanced that an information sheet be put out—probably by the A.M.R.C.A.—listing all parts, cars, etc. that are for sale, to help those who cannot locate some of the tough items. Might also include some tips to help the newer car boys get a bit more speed from their jobs. As long as space permits we offer these pages to carry this info, and would be most happy to print such material; just try us.

Most of the model racing hotshots know all about the services of Franny Wolf, proprietor of Franny's Chrome Specialties (513 Vesta Pl., Hyde Park, Reading, Pa.) but maybe some of the newcomers don't. Franny carries the parts needed for the real hot cars, and also buys and sells used cars, engine and parts. However, his specialty is hopping up engines and chrome-plating cylinder sleeves. The work can be done on any engine from Half-A up to .65, and prices naturally depend upon the displacement. Chroming a Half-A sleeve costs $5.95, while a .65 job will run $11.95.

Franny points out that a sleeve treated this way will give years of service, so "first cost is the last." The hop-up jobs include the chrome operation on sleeve and crankshaft, fitting piston and rings, and rod, and careful breaking in with special moly lubricant. The jobs are guaranteed for 60 days. You can have your own engine hopped for $11.95 (Half-A) up to $23.95 (for the .65's). You can also purchase a hopped engine —prices depending upon make and size. Franny carries all the hottest fuels, moly additive, etc., and has customers all over the world.

We mentioned the O&R scale car briefly in the last issue, but now have a bit more data on it. The car is still made, as is the special .29 engine. Furthermore, parts for both can be had from Cheminol Corp. (9307 E. Bermuda St., Rivera, (*Continued on page* 91)

Custom Proto by Ronald Smith, Alameda, Calif.; Dooling 61, "Franny" chromed liner.

(*Continued from page* 82)

Winners in the California Championship were:

Grand Sweepstakes Champion—Joe P. White, age 15 (Junior Class entrant), Sacramento, Calif. No. events entered, 9. Total points, 50. Award: The Grand Sweepstakes Trophy—the Jr. Class Trophy, plus an all-expense trip to the 1954 Nationals as representative of The California State Exchange Clubs.

Senior Class Champion — William (Bill) M. White, Age 16 (Sr. Class entrant), Sacramento, Calif. No. events entered, 8. Total points, 38. (Note: Bill is the 1953 National Champion—and brother to above.) Award: Senior Class Trophy—plus $150 U.S. Savings Bond.

Open Class Champion—Jim Nightinggale, age 21 (Open Class entrant), Phoenix, Ariz. No. events entered, 5. Total points, 38. Award: Open Class Trophy—plus $150 U.S. Savings Bond.

Special Female Sweepstakes Award—Thelma Anderson, age 33, San Bernardino, Calif. No. events entered, 4. Total points, 35. Award: Trophy.

Following are the names of the official new Record Holders at the California Championships:

Indoor Hand-launched Glider, Senior Class—Jack Ritner, age 19, 1926 47th Avenue, San Francisco, Calif. (Time: 10:06.01). Indoor Hand-launched Glider, Junior Class—C. Sorensen, age 15, 125 So. 18th St., Montebello, Calif. (Time: 5:52.7). Outdoor Hand-launched Glider, Open Class—Joe Bilgri, age 35, 256½ Locust St., San Jose, Calif. (Time—13:00.6). Class C Free Flight, (Jr. Class)—Dennis Alfred, age 11, 6937 Madrone, San Diego, Calif. (Time—15:49.4). Class C Free Flight (Senior Class)—Ken Kaelon, age 16, 9019 E. De Adalena St., Rosemead, Calif. (Time—15:08.4).

PAA-Load in San Diego found Jack Oxley winning two more watches, first in A-B and second in A/2. Butch Corbley won A/2 Open. In Junior Bill Spawr won A/2 and was second in A-B. Brother Walter was 2nd in A/2, Martin Wolff won A-B Junior.

Alberto Vela is presently visiting in L.A. trying to land some painting jobs so that he can move up here from Mexicali. Del Swartz and Denny Davis are presently touring Europe on French motor bikes. Paul Gilliam recently received some rolls of film from there, developed and printed same and there were finished prints in the mail back to those two guys three days after the shots were taken in Paris.

The AVA-Toros held an open contest for A/2 Air Cars on July 24 at the Convair Pomona parking lot. Engine displacement was limited to .065; no horizontal surfaces, models timed for 10 laps or 1/6 of a mile. Fastest cars and time duplicators for 3 runs awarded prizes.

Radio Control is seeing a lot of activity. R. L. Brown has a boat almost finished for a Catalina Channel crossing—two Cameron .19's, Babcock 3 channel and all. Mark Tackett is readying one of his Sunduster free flights with a sub-miniaturized modified 3 tube Good receiver to escort Brown across in the air. Boats are being built by the dozens. WAG receivers and xmtrs are appearing everywhere. We even have one finished. One can't go any place without seeing R/C. One enterprising fellow in Ontario has a scale model Buick which keeps citizens in a dither with its fine control.

The Santa Ana meet found the two-channel rudder and elevator jobs leaving the rudder-only ships far behind. Dean Kenny for a change stuck his Buttercup up in front of Colby Evett by a few points

(*Continued on page* 87)

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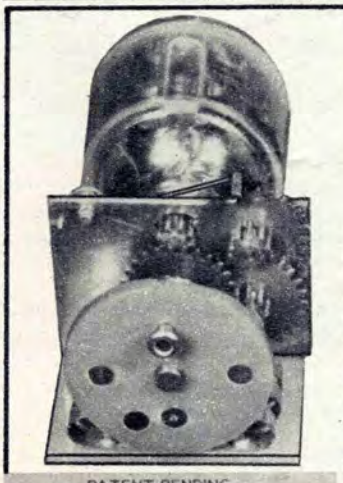

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#10 for 2 size C med. cells .40
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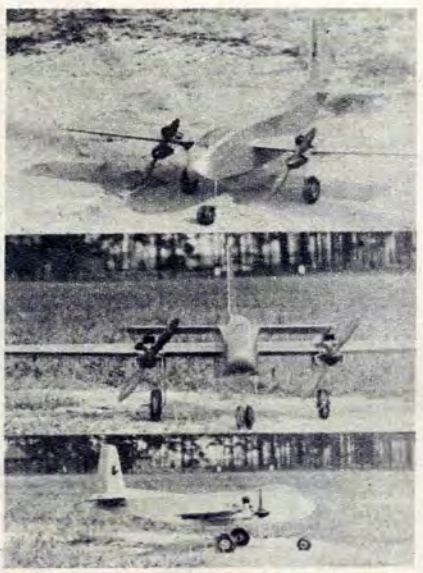

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1/16" sheet. 'Beefing' up the wings between the two nacelles is a section of ¼" plywood, 3" wide. Plenty of weight but also very rugged. It will take off and fly on the inboard engine alone. Once airborne with both engines, there is no worry as to which one quits first.

"Span is 44". With large main wheels, dual nose wheel and gear mounting that is designed to flex backward, it handles fine on rough ground. On the original test hop, with both engines churning and flying counter-clockwise, it slow-rolled into the circle. After minor repairs and converting it to clockwise rotation, it has since become my 'favorite model'."

—Bill Lavers, Moultrie, Ga.

Hobby-Model World

(*Continued from page* 85)

to win his first major contest—he totaled over 160 points, which certainly speaks well for his flying. Colby was pretty close on his heels. Incidentally, these contests get expensive, Colby using a Fox 59 and *three* Walker pressure tanks; used up seven pints of fuel and started on his eighth when flying stopped.

The Los Angeles Club held an auction recently wherein everyone brought along the loot he wanted to get rid of and get rid of it he did! Receivers, transmitters, escapements, engines, pieces of airplanes, whole airplanes—it was all there, if you wanted it you could buy it cheap.

John Tatone won F.A.I. West Coast—no time reported.

—DICK EVERETT

SOUTHERN SCENE

Forrest Cole of Smyrna, Ga., writes that radio control is one of the South's fastest growing model fields. Throughout this area, new radio control groups are being organized with many free flight and U-control clubs diverting their time and efforts to this hobby. The Lockheed Model Engineers, the old Marietta Kittyhawks, are just about 100% R/C already. This group is giving some serious thought toward affiliating with the "International Model Radio Control Society."

Back in March, the Lockheed-Atlanta R/C group journeyed down to Thomaston in Georgia for one of their flying sessions. Ironically enough, it turned out to be the most windy day of the year. It wasn't a total loss for many of the boys did much testing and also talked over some of their problems. "Doc" Woodall demonstrated his exhaust type motor control system, which possibly could be the best variable speed system yet.

Most of the R/C men in this area feel that there will be a marked improvement in this field during the coming year. With new radio equipment and new type escapements, such as the "Ecco" rudder-elevator type, there will be much faster, more maneuverable ships. It looks as if we will see elevators used much more with engine control almost standard equipment. The average ship will probably be a five-footer from about four to six pounds, powered by a 29 or maybe a hot 19. The 27 mc. will be the most widely used outfit in this area. Also looks as if more audio tone equipment will be used.

Radio control scale seems to be gaining in popularity thruout the South also. Several scale jobs have been flown in the Atlanta area. L. R. Purdy, well known R/C man from Smyrna, Ga., has a new L-5 that really flies with the bet of them.

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OSR type Quench coils $1.65; for **MINI-MAC**.... 1.25

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MINI-50 RECEIVER KIT, with 1AG4 Tube, wound choke & 6-inch Coil. No relay.. 11.45

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Complete with Tube & **SIGMA 4F Relay; MILLER, $9.95; SIMPLE SINGLE**..... 9.80

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We hear it is the first seen to do a true stalling spin, with no elevator control yet! Also he has a classy Navion that flies as well as it looks. Looks mighty good, too. Gene Landers of Atlanta has a 11 pound "Republic Seabee" (pictured in earlier issue) with 8 foot span, powered by an O&R .60. It is equipped with rudder, elevator, ailerons and motor control. It has had many successful flights already. This airplane really has to be seen to be appreciated.

Meet the Coles. A few miles north of Atlanta live two hard-working modelers. Harry and Forrest Cole, uncle and nephew, respectively. These gents were among the first in the Atlanta area to build and fly radio control models. They both flew free flight before World War II and soon became interested in radio control early in the postwar days. Ever since, they have been up to their ears in it.

Harry, a young fellow of 53, W4EEB, is considered one of the South's oldest "hams." He is a commercial artist by trade. It seems that whenever anyone has a problem in R/C, Harry is the one they turn to. He has done very much to improve and promote radio control in the Atlanta area.

Forrest Cole, a bit younger, 27, an industrial photographer for Lockheed Aircraft, felt at the beginning of R/C that it would grow into its own and become one of the nation's top model interests. Forrest has been a great help in promoting R/C in this area, especially at the Southeasterns in Atlanta. He is always on hand when help is needed in organizing and running off this event.

Both Harry and Forrest are holding to the six to seven foot class speed jobs with rudder-elevator and variable engine controls.

Race Cars. R. E. "Bob" Perkerson, 1058 Blueridge Avenue, N. E., Atlanta, invites all model race car fans in this area to join the Atlanta club, which meets once a month. A club race is held once a month. Points are given at each monthly race, and once a year a banquet is held and trophies awarded to first three high-point men in each class. Also a club High Point Trophy is awarded annually. You speedboat fans in this area will be interested in learning that, at this writing, plans were underway to build a boat pond adjacent to the Race Car Track at Maddox Park. Write to Bob Perkerson for date of the Southeastern Regional AMRCA sanctioned race which will be held shortly at the Maddox Park track in Atlanta.

"Nitro" Needed. Speed flyers have asked me to appeal through this column to the AMA and U. S. Navy to pull the strings and get adequate supply of nitromethane. The situation is getting alarming! Almost impossible to find down this way. Without proper fuel flyers will be hesitant to enter contests and it is most important that top level officials in both AMA and U. S. Navy get release of supply of nitro to suppliers in this area. What can you do? Immediate help needed!!

Speaking of Speed. Back in April we received a letter from Dale Kirn, well known modeler, who is or was at that time stationed at Wiesbaden, Germany. Dale writes that he and a few others are now flying Monoline. He says that he has flown one of his Monoline jets at well over the 150 mark. His Mac .60 Monoline job on the first flight, using Testor's 39 and a cold plug, went well over 140. Dale says he was trying to hold it back some as he didn't quite know what to expect. He really is sold on Monoline. Looks as if everyone is getting the "Monoline Fever." We believe Dale is getting a bit homesick for the States. He writes that Europe may be a fine place to visit, but living there, well, that's an entirely different story. He feels there is one exception, though—Switzerland is "out of this world." While there, he met some local modelers and did some trading. Man, if you think you've got trouble, take a listen to some of theirs. Imagine their having to pay the equivalent of $1.10 for a ½ pint of S. S. 1000! A Mac .60 sells for 144 Swiss francs or about $36!

If any of you fellows care to write Dale, here is his address. A/2C James Dale Kirn, Flight D, 31st Comm, Secty. Sq. APO 633, c/o Postmaster, New York, N. Y.

We promised you more news about activities in Columbus, Ga. The Yellow Jacket Club is holding extensive lecture and demonstration periods on control line. The Trinity Angels Club is progressing nicely and the Flying Aces are lending their support to the other two clubs in getting a flying field with asphalt strips, and the whole-hearted cooperation of the Columbus Exchange Club which should put Columbus on the model map! Good luck to Fred Farmer, former Sec.-Treas. of the "Jackets," who is now in the Air Force. Larry Cooper, our Columbus reporter, is now covering model railroading in his monthly Hobby News letter. He relates that the Central of Georgia Model Railroad Club was formed in April 1952 when they were given a lease by the Central of Georgia Railroad for the use of their 2nd Avenue passenger station for their Club House. Upon repairs to the building the construction of an HO gauge model railroad layout was started and now they have over 400 feet of track laid. Trackage in operation includes a turntable, round house, diesel service shops, freight yards, lead tracks, passenger terminal, and storage tracks. The Club meets every Wednesday evening and membership is open to all interested in this hobby. Prominent in the club are O. F. Hackler, Dr. Wm. C. Curran, J. E. Morpeth, W. D. Ragan, Jr., Perry S. Jenkins, George J. Burrus III and Frank A. Phillips, Jr.

Jimmy Gibson of Tallahasee, Florida, reports that a club has been organized there. Their sponsors gave them a Fireball and a Fox .19 and members of the newly formed club hold weekly club training programs with this equipment, but it isn't long before the members build their own and get into the business on a larger scale. Jimmy inquires about the date for the Alexander City, Alabama, meet this year. Have heard no word from them whether or not a meet will be held.

"Hobby Highlights" from up Canada way is getting ritzy! The latest edition in our hands is done on enamel stock paper and quite an improvement over the former mimeograph sheet. The editor, Bernard R. Marsh, 2387 Yonge Street, Toronto, is one of the breeziest writers in the business. He predicts that Canada will win the 1954 F.A.I. International Power Event and will place among the first five in the Wakefield Finals, which he admits is sticking his neck out. He also relates that municipal authorities in Sydney, Australia, are about to ban flying of model planes in their parks. Why? . . . You know! It offends the same sensitive people who object to the noise. We have some here in the States. American motors and supplies are hard to get in Australia and if you are interested in doing a little "swapping" write J. DunKerton, 15 La Mascotte Avenue, Concord, New South Wales, Australia.

—R. H. ELLIOTT

Hobby Bookshelf

(*Continued from page* 14)

up a full-fledged enthusiast before he has finished.

Model Racing Yachts by Denis Browne (printed in England, distributed in U.S.A. by John de Graff Inc., New York 10, N. Y., 124 pages—$2.00). This volume is primarily written for the currently active model yacht racing hobbyist. The author presents many new as well as some old ideas for getting the most out of the model yacht. A good deal of space is given to the discussion and comparison of the Braine versus the Vane steering gear, with a marked leaning toward the latter. The section describing the Ljungström Rig is very enlightening, as is the chapter on tests for symmetry, balance and mast adjustments.

Bear in mind that his book has been written for those who are already racing yacht models and will provide for them new and better ways to rig their boats.

V-2 by Walter Dornberger (Viking Press Inc., New York 17, N. Y., 281 pages—$5.00) is the story of the development of the most fearful weapon used against the Allies in World War II.

The author is the scientist who was in charge of the German rocket station at Peenemünde and the fantastic enterprise which, had it met with earlier success, could have changed the course of the war.

For twelve years under army supervision of the Hitler regime, brilliant scientists under Dr. Dornberger's direction, starting from scratch, feeling their way in an area where virtually nothing was known, developed this formidable weapon.

Nazi engineers had to improvise instruments to find out why the early rockets exploded disastrously. Test stands and guiding devices as well as elaborate firing routines were also developed, many of which are used today.

The eyewitness account of a British heavy-bomber raid and the rapid recovery from almost complete ruin of the project, is almost unbelievable. Hitler, due to one of his dreams, felt the rocket program a failure until he saw a film of a successful firing, then full priority was granted, but this came too late to change the course of the war.

There is no doubt that Peenemünde had brilliant scientists at work, but in spite of all the brilliance it took twelve years to develop a successful rocket weapon. On the other hand, the Manhattan Project with its scientists and cooperating industrialists developed and successfully used an atom bomb on Hiroshima within a period of three years.

This is a book that your library should have on its shelf to be read and reread, for it gives the reader not only the program of the development of pure research but the uses to which such research can be put by any dictator.

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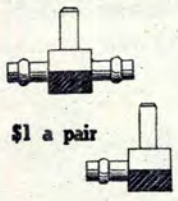

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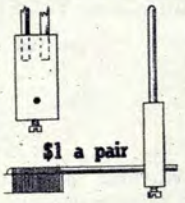
2 Speed R/C TEES



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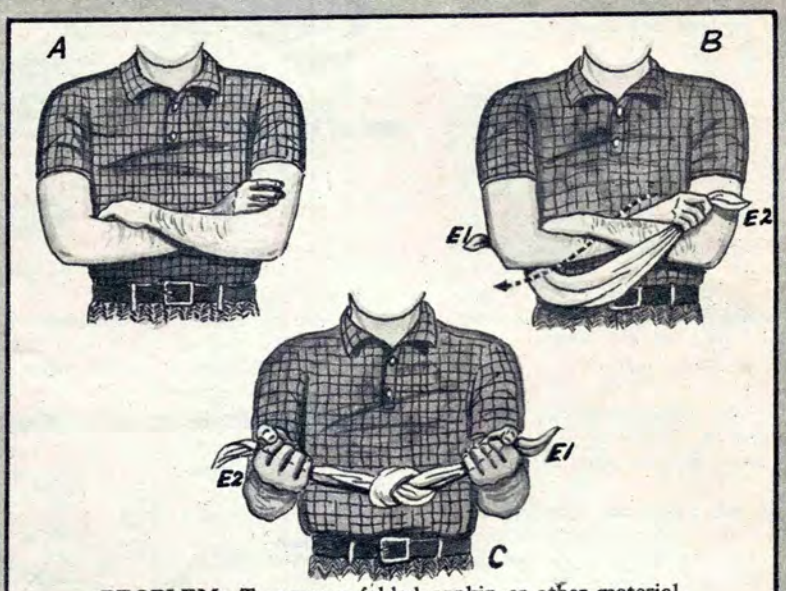
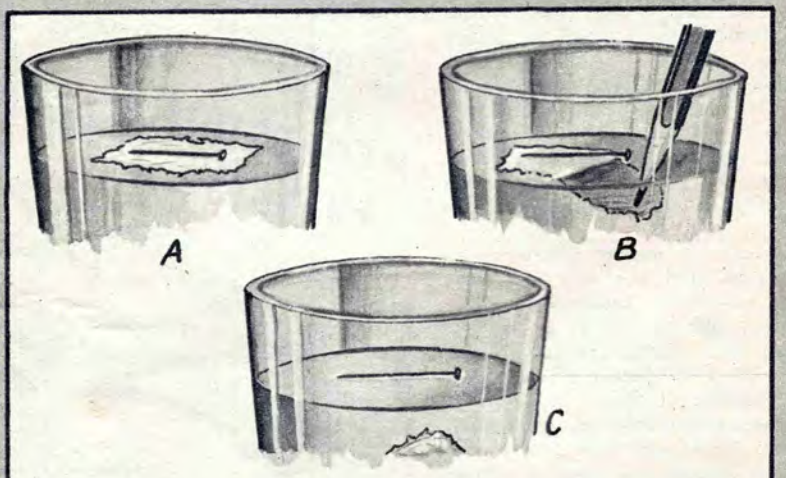
Trick Stuff:



PROBLEM: To grasp a folded napkin or other material by the ends in such a way that, without letting go or changing hands, you can tie a knot in it.

SOLUTION: Fold your arms as in sketch "A", then grasp the ends of the napkin as shown in sketch "B". Now, without letting go of the ends, unfold your arms as shown by dotted line, and you will find that ends "A" and "B" have changed positions making a knot as at "C".

—James J. Mokrohajsky, Cleveland, Ohio



PROBLEM: To float a common pin or needle on the surface of water.

SOLUTION: Place the pin or needle on a small piece of paper handkerchief as shown at "A". After the paper has been soaked, take a pencil or other implement and push the tissue down and away from the pin or needle "B". The paper will sink to the bottom leaving the pin or needle on the surface of the water, held up by the unbroken surface tension, "C".

—John Starek, Houston, Pa.

What's Your Favorite Trick? Cash Prizes!

We're asking readers to send in their favorite original magic tricks. Air Trails HOBBIES will pay $25.00 for first one received and illustrated here. All you have to do is furnish us with a description of your favorite feat, include rough diagram or sketches if required. Send to "Trick Stuff" Dept., c/o Air Trails HOBBIES For Young Men, 304 East 45th St., New York 17, N. Y.

Hobby Shop Directory

Model Builders! Here's a listing of the nation's leading hobby shops. You'll want to file it away—and when you're in the neighborhood, drop in and browse around. They're expecting you.

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575 Madison Ave. PL 9-2080

Round the Track

(*Continued from page* 84)

Calif.). Car itself is a very close scale copy of the Offenhauser Midget, and can be had in a variety of colors. It is sold as a pull toy for $6.95, and complete with Sports power unit for $24.95. For a buck more you can obtain a Speed power unit, but this combination is not sold complete; you have to purchase the car and the Speed unit and assemble them. Speed power unit is intended for competition, of course, and has special tires and hubs. Both power units have 3-1 drive ratio and a special centrifugal clutch that allows standing starts.

The car can be operated in small areas; in fact, there is an O&R Swivel Post assembly that comes with 18 feet of music wire; you need a hole in the center of the circle to anchor the post.

The car itself is designed for ease of servicing, and the entire top two-thirds of the body lifts off to give access to the works. Engine is mounted with cylinder facing rearward at an angle of about 45 degrees, and crankshaft running across the car. There is a baffle cooling system; the entire powerplant is behind the seat of the car, and cannot be seen when the body top is in place. Tank is part of the lower body section. A 3-1 planetary reduction drive is built into the brake drum of one wheel, and to assure ease of starting, the engine flywheel has cross ridges on it and protrudes through a slot in the bottom of the car; thus you don't have to start the engine through the gear reduction system—in fact, you couldn't because of the clutch built into the flywheel. Front axle is spring suspended, can rock to enable it to follow track irregularities.

The car is 10" long, 4" high and 5½" wide, and has a 4⅝" tread. A scale-sized "driver" is sold as an extra.

If there is no great choice on the market today for the builder who wants to build working cars, there is a tremendous variety in the little non-working scale models. These come in various materials, with the all-plastic kits being the easiest to assemble and the simplest type for the inexperienced builder to make, if he wants to have absolute realism. One of the largest lines is that offered by Revell; there are four sets of five models each, and every model in the line is all-plastic. Series 1 models are all oldtime American cars of the open type. Series 2 are also antiques, but all closed cars except for the Stutz Bearcat. Series 3 follows the ancient pattern, but has various types of bodies, including a 1904 Olds delivery truck. Series 4, the latest out, consists entirely of sports cars, with the MG and Jaguar XK-120 the only moderns in the group.

Monogram Models' "Plastikit" line includes a midget racer with Offenhauser engine details and a hot rod with Ford V-8 engine details.

Another extensive minature car line is that of Hudson Miniatures (Scranton 10, Pa.). This concern has four all-plastic oldtimers, which average about 4½" in length. Same company offers over a dozen cars in larger size—about 8" length—which are composite construction; they have mostly die-cut wood parts, but such intricate units as the wheels are in plastic.

Ace Products (Pasadena, Calif.) has an extensive line of modern car types, in a scale of ½" to the foot. They cover such machines as the Jeep, Corvette, T Rod, Race Car, Jalopy, etc. These kits are mainly of wood, but with rubber wheels and small metal parts included.

Lovers of the latest in sports cars can obtain accurate kits from the Berkeley Models (Hempstead, N. Y.) line. With seven of the latest designs, including the GM "Le Sabre," Ford "X-100," Chrysler "D'elegence," etc., you can have the sportiest types that are on the road today. If you go more for the competition sport type, there are the Jag, Nash-Healey and Allard. These kits are mostly of wood, with the car body block practically finished, and requiring only sandpaper work. Wheels are of rubber, and there are numerous metal parts, some stamped and others die-cast. The entire line is to the ½" equals a foot scale.

Many other kit makers, including Kaysun and Cavacraft, have one or two cars in their lines. Since car kits seem to be top selling items today, it is likely that these kit people will soon add more numbers.

We've probably missed some of the kits and makers, but as noted previously, if you'd like to make a collection of these little scale cars, you can find just about anything you might fancy on the shelves of your local hobby shop.

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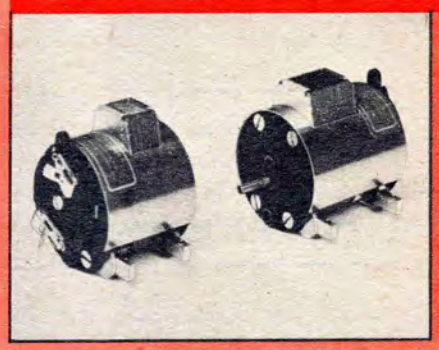
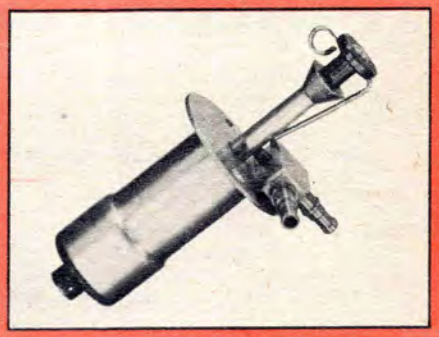


Husky boat motors for powering by 2 to 4 batteries are new developments from Pittman of Sellersville, Pa. Both motors have same overall height (2⅛") and overall width (2¼"); less powerful Model 9001 is for 1 and 1⅜" props such as Sterling Nylon propellers; Model 9002 is for larger props such as 2" diameter. Shafts are of tool steel; Alnico magnets; Nylon bearings; reversing switch.



Fuel shut off flight timer is "Timit" by Kading Specialty Co. Sells for $2.25. High-pressure body is die-cast of #13 aluminum alloy; stainless steel shut-off shaft. 90 deg. inlet and outlet for easy tank-to-engine hook-up. Positive action needle adjustment. Will hold split-second adjustments flight after flight—to quote Lud Kading who makes it. This is first item by L.K. who's back in model mfg.

Art Studio in South Bend, Indiana (Contemporary Designs, Box 3538) introduces a kit for a new type of mobile called the "Constellation." According to Leslie Richards, art director, kit makes it easy for an amateur craftsmen to turn out a professional looking mobile that would cost up to $27.50 at retail. Complete 24-piece kit is $4.95 and includes wood cut-outs, metal star, cork spheres.

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Elf Four Ign	49.50	33.00
Fox 19	12.50	8.34
Fox 25	12.50	8.34
Fox 29	14.95	9.97
Fox 35	14.95	9.97
Fox 59	22.50	15.00
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K & B 15 2S	11.95	7.97
K & B 19 2S	16.95	11.22
K & B 23	13.95	9.29
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K & B 35	14.95	9.97
McCoy 9	7.95	5.30
McCoy 19 Sport	9.95	6.62
McCoy 19 RH	12.95	8.65
McCoy 29 Sport	11.95	7.97
McCoy 29 RH	16.95	11.22
McCoy 60 RH	24.95	16.70
O.K. Cub .099	6.95	4.64
O.K. Cub .14	8.95	5.97
O.K. Cub 19	8.95	5.97
Space Bug	6.95	4.64
Space Bug Jr	3.95	2.64
Thermal Hopper	6.95	4.64
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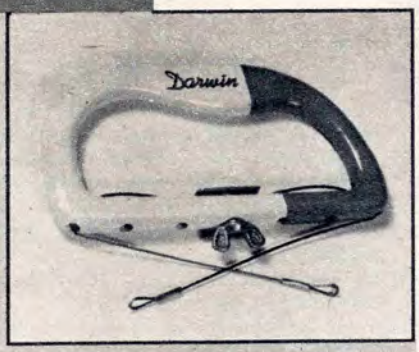
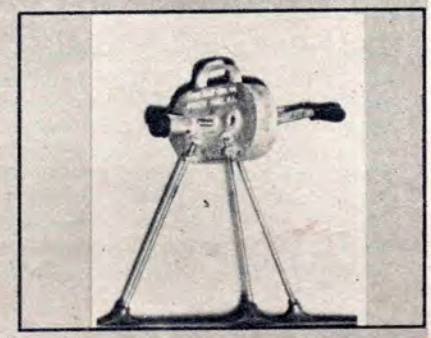
SHOWCASE



All metal handle for control line model plane flying is Darwin's latest offering. It sells for $1.25. Adjustable, you can set your lines 4¾ inches apart, 3¼ or 1½. Locking mechanism is positive and easy to change. Handle is two-tone in color—yellow and light blue—so you can easily recognize "up." It is shaped to rest comfortably in palm of hand. Outfit also makes 28 different Darwin fuel tanks.



Inertia starter for model engines made by Stuhlman Engineering Co., 400 Desplaines Ave., Forest Park, Ill. It's priced at $24.95, plus parcel post costs for 20 pounds to your door. For starting any spinner-equipped engine. Sturdy tripod leg arrangement; carrying handle for ease of transportation. Though idea not new, we get continual requests as to where these starters can be obtained.

Kwik-start O&R glow plugs made by the Cheminol Corp., now come packaged in metal protective case with plastic window—65¢ each. KS-1 is for Wen-Mac, Wasp, Atwood, Sky-Fury, McCoy .09; KS-2 is for K&B, OK, Dooling, Arden, Forster, Orwick; KS-3 is for Fox, Veco, McCoy, 19-29-60, Cameron, O&R 23-29-33-60; KS-4 is for OK Cub, Spitfire. Best of all—this info is on each package.

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The TIMIT (pronounced time it) incorporates modern design along with years of practical model engineering experience. Easy to install, light in weight (approx. ½ of an ounce), simple in operation, it has a needle type adjustment for greater dependability and accuracy. The TIMIT can be adjusted from 0 seconds to 2 minutes with a slight turn of the adjusting screw to give you "split second timing." It will retain its setting for flight after flight.

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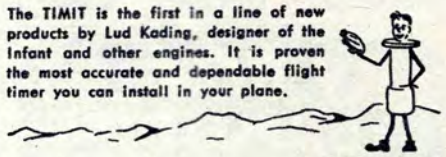

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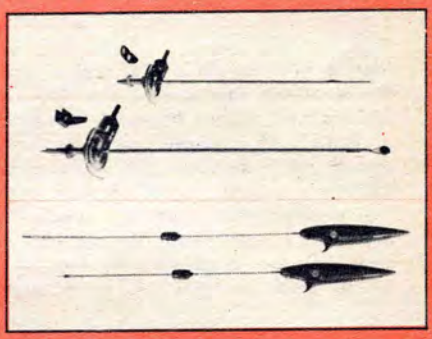
HOBBY

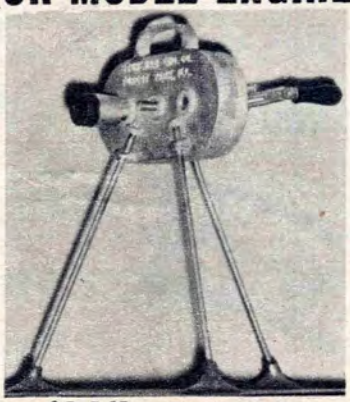
How to organize and conduct an air rifle club—based on the junior 15-foot (range) air rifle training programs of the National Rifle Assoc., Civitan Club (of Hagerstown, Md.) and the Boy Scouts—is a most informative booklet available from the Daisy Mfg. Co., Plymouth, Mich. Daisy also has other pamphlets and printed data. The air rifle program sounds like a good program.

Mono-Line control units for flying model aircraft on a single wire have been redesigned by Victor Stanzel (Schulenburg, Texas) and are now available. Class A-B-C control unit is $1.50; Class A-B-C Mono-Line handle is $1.95. System permits control flying on long line —from 100 to 150 feet. Operates by twisting single wire between handle and plane. One line means less resistance.



Junior version of full-size work bench with handy tool rack, drawer and wood vise has plywood work surface with reinforced legs, cross-braced for rigidity. Sanded smooth, with tan stain finish, bench comes with assortment of practical tools: hand saw, hammer, plane, chisel, screw driver, pliers, level, putty knife, triangle, plus more. By American Toy & Furniture Co.

INERTIA-STARTER FOR MODEL ENGINES



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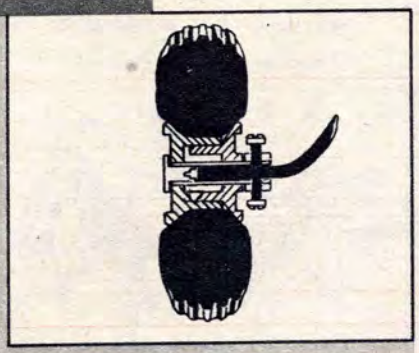
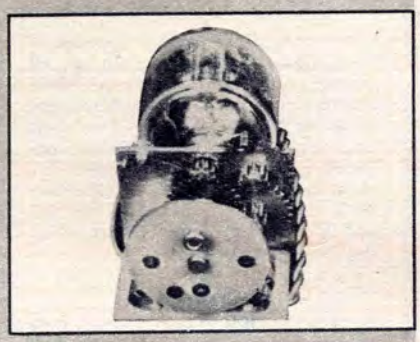


Priced from 15c up per pair, new Kap Pak model wheels can be attached to any landing gear wire without special tools or accessories. No hubs are required, no collars, and through ingenious arrangement the hub fits any size wire. Secret of the arrangement is illustrated in the cutaway drawing. Wheels turn on a sleeve which is bolted to landing gear wire. Unplug that soldering iron!



Multi-Servos, motor-driven radio control actuators in four different versions are marketed by deBolt Model Engineering Co. Descriptive literature is available on these from the outfit at Williamsville, N. Y. Says Harold deB: "Using your single channel radio without changes you can have your choice of single or multiple controls selective to your command; no rubber band problems."

Musciano's Flying Scale Models of Famous Planes—Collection No. 1—is compiled from the pages of this publication and reprinted by Hobby Helpers, 770 Hunts Point Ave., New York 59, N. Y. Sells for 50¢. Both World War I and II control line models by Walter Musciano are included: FW 190; Roland D-2; Hawker Hurricane; PB2a; DH-4; F4F-4; Fokker E-1 plus a small stunt model.

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While every precaution is taken to insure accuracy we cannot guarantee against the possibility of an occasional change or omission in the preparation of this September 1954 index.

What's Your Hobby?

He "Collects" Flying Saucers

■ Ever since June 1947, when a Boise, Idaho businessman by the name of Kenneth Arnold spotted a chain of saucer-like objects in the air, collecting "flying saucer" data has become the hobby of George D. Fawcett of Leaksville-Spray, N. C. His "collection" is made up of all available information on the subject and includes scrapbooks, photographs, interviews, sketches, books and bulletin boards.

In his personal letters files he has correspondence from close to 100 persons from all over United States and many foreign countries, as well as many of his saucer sighting questionnaires which have been answered by actual eyewitnesses. In addition he has bibliographies on books and magazine articles, many books and articles themselves, a number of photo slides and every other conceivable kind of material dealing with the "saucers." Fawcett, himself, has written several pamphlets on the subject and has lectured to civic clubs, YMCA groups, school classrooms and assemblies. He has organized his own Junior Flying Saucer Investigation Bureau for young boys in his home town and vicinity. He offered his services to the Civilian Saucer Investigation in Los Angeles and to the National Saucer Investigation at Wright-Patterson AFB. Recently he was appointed to the council of the International Flying Saucer Bureau, Bridgeport, Conn.

With the aid of a newly purchased Navy-surplus, 25 power telescope, Fawcett has keen keeping a vigil for the saucers, as well as writing his fourth pamphlet entitled "Flying Saucers Are Real and Have Landed."

Last fall his hobby earned him a third prize at a local hobby contest. George, who is 24 years old and a physical director at the Consolidated Central YMCA, is not a "weirdie" but a serious student of the phenomenon that has puzzled the world for seven years. His ambition is to find the truth. In his own words, he will continue searching for it even if it takes the rest of his life.

Now . . . What's your hobby? Is it of special interest to mechanically minded young fellows? If so, tell us about it! Send photographs, details on how you got started, to "What's Your Hobby," Air Trails HOBBIES, 304 E. 45th St., New York 17, N. Y. We pay you $25 for first photo, $5 for extra photos so used.

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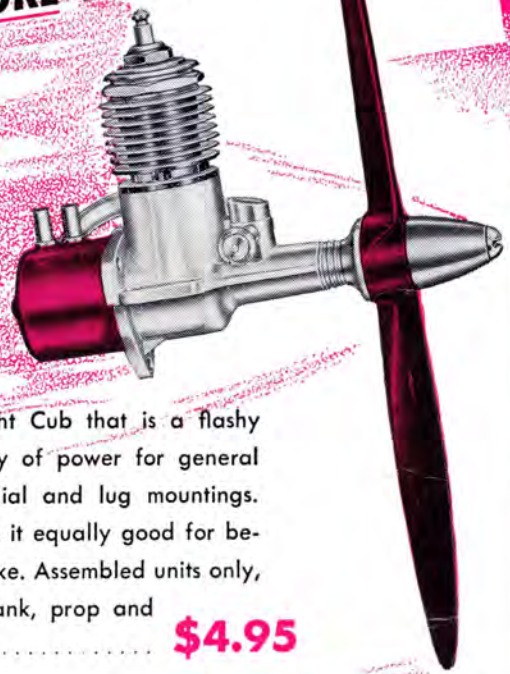

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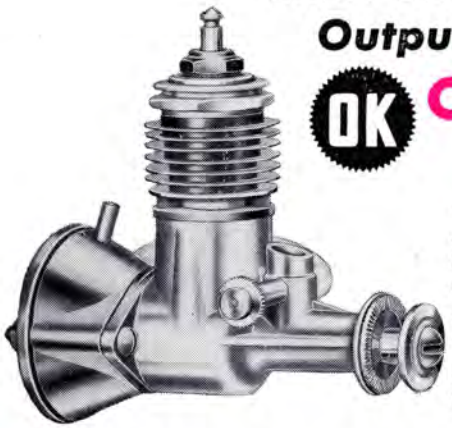

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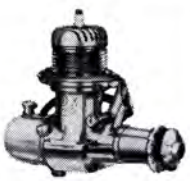

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